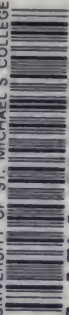
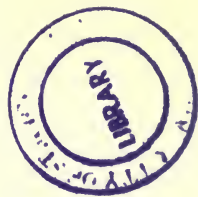


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[The following memoir is in substance the writer's thesis for the degree of
Ph.D. at Yale University, 1891.]

I.—MATHEMATICAL INVESTIGATIONS IN THE THEORY OF VALUE AND PRICES.

BY DR. IRVING FISHER.

[Read April 27, 1892.]

PREFACE.

John Stuart Mill* asserted that he had left nothing in the laws of value for any future economist to clear up. Until 1871 this statement doubtless had much the force of dogma. Even Jevons made preliminary obeisance before proceeding to break the ground afresh with the mathematical instrument. Jevons with characteristic candor expressly disclaimed finality;† but few of his followers have realized with his clearness and honesty the need of further analysis along the lines which he laid down.

The truth is, most persons, not excepting professed economists, are satisfied with very hazy notions. How few scholars of the literary and historical type retain from their study of mechanics an adequate notion of force! Muscular experience supplies a concrete and practical conception but gives no inkling of the complicated dependence on space, time, and mass. Only patient mathematical analysis can do that. This natural aversion to elaborate and intricate analysis exists in Economics and especially in the theory of value. The very foundations of the subject require new analysis and definition. The dependence of value on utility, disutility, and commodity, the equality of utilities, the ratio of utilities, the utility of a commodity as a function of the quantity of that commodity solely, or of that commodity and others conjointly, are subjects, the neglect of which is sure to leave value half understood, and the mastery of which claims, therefore, the first and most patient effort of the economic scientist.

These form the subject matter of the following memoir which is *a study by mathematical methods of the determination of value and prices.*

Much germane to the subject has been omitted because already elaborated by others. Cases of discontinuity belong to almost every step, to modify or extend the continuous case. But the application of this correction has been thoroughly worked out by Auspitz und Lieben. Multiple equilibrium and monopoly value are omitted for a similar reason.

The two books which have influenced me most are Jevons: "*Theory of Political Economy*," and Auspitz und Lieben: "*Untersuch-*

* Pol. Econ., Bk. III, Ch. I, § 1.

† Pol. Econ., Pref. 3rd ed.

ungen ueber die Theorie des Preises." To the former I owe the idea of marginal utility and of mathematical treatment in general, to the latter the clear conception of the "symmetry" of supply and demand and the use of *rate of commodity* in place of absolute commodity, and to both many minor obligations.

The equations in Chapter IV, § 10, were found by me two years ago, when I had read no mathematical economist except Jevons. They were an appropriate extension of Jevons' determination of exchange of *two* commodities between *two* trading bodies to the exchange of *any number* of commodities between *any number* of traders and were obtained as the interpretation of the mechanism which I have described in Chapter IV. That is, the determinateness of the mechanism was expressed by writing as many equations as unknowns. These equations are essentially those of Walras in his *Éléments d'économie politique pure*. The only fundamental differences are that I use marginal utility throughout and treat it as a function of the quantities of commodity, whereas Professor Walras makes the quantity of each commodity a function of the prices. That similar results should be obtained independently and by separate paths is certainly an argument to be weighed by those skeptical of the mathematical method. It seemed best not to omit these analytical portions of Part I, both because they contribute to an understanding of the other portions of the work and because they were in a proper sense my own.

Three days after Part II was finished I received and saw for the first time Prof. Edgeworth's *Mathematical Psychics*. I was much interested to find a resemblance between his surface on page 21 and the total utility surfaces* described by me. The resemblance, however, does not extend far. It consists in the recognition that in an exchange, utility is a function of *both* commodities (not of one only as assumed by Jevons), the use of the surface referred to as an interpretation thereof and the single phrase (Math. Psych., p. 28) "and similarly for larger numbers in hyperspace" which connects with Part II, Ch. II, § 5.

There is one point, however, in which, as it seems to me, the writer of this very suggestive book has gone far astray. Mathe-

* His result, which translated into my notation is

$$\left(\frac{dU}{dA_1}\right)\left(\frac{dU}{dB_2}\right) - \left(\frac{dU}{dB_1}\right)\left(\frac{dU}{dA_2}\right) = 0,$$

becomes by transposition and division identical with part of the continuous proportion, Part I, Ch. IV, § 3.

matal economists have been taunted with the riddle : What is a unit of pleasure or utility ? Edgeworth, following the Physiological Psychologist Fechner, answers : " Just perceivable increments of pleasure are equatable " (p. 99). I have always felt that utility must be capable of a definition which shall connect it with its positive or objective commodity relations. A physicist would certainly err who defined the unit of force as the minimum sensible of muscular sensation. Prof. Edgeworth admits his perplexity : " It must be confessed that we are here leaving the *terra firma* of physical analogy " (p. 99). Yet he thinks it is " a principle on which we are agreed to act but for which it might be hard to give a reason ; " and again : [such equality] " it is contended, not without hesitation is appropriate to our subject. "

This foisting of Psychology on Economics seems to me *inappropriate* and vicious. Others besides Prof. Edgeworth have done it. Gossen* and Jevons appeared to regard the " calculus of Pleasure and Pain " † as part of the profundity of their theory. They doubtless saw no escape from its use. The result has been that " mathematics " has been blamed for " restoring the metaphysical entities previously discarded. " ‡

These writers with Cournot, § Menger, || and Marshall ¶ appear to me to have contributed the most to the subject in hand. With the exceptions noted I have endeavored not to repeat them but to add a little to them, partly in the theory of the subject and partly in the mode of representing that theory. Readers to whom the subject is new will find the present memoir exceedingly condensed. In the attempt to be brief, the possible uses of the diagrams and mechanisms have been merely sketched, and elaborate explanations and illustrations have been omitted. I have assumed that my readers are already familiar with (say) Jevons, Walras, Menger or Wieser where illustrations and explanations regarding " final utility " abound. Much of Part II and Appendix I may not be thoroughly intelligible to those not familiar with higher geometrical analysis. These parts are made as brief as possible.

My especial thanks are due to Prof. Gibbs and Prof. Newton for valuable criticism.

IRVING FISHER.

Yale University, May, 1892.

* Menschlich Verhehr., *Braunschweig*, 1854. † Jevons, p. 23, also pp. 8-9.

‡ Dr. Ingram. § *Théorie des Richesses*, *Paris*, 1838.

|| Volkswirtschaftslehre, *Wien*, 1871. ¶ *Prin. of. Econ.*, *Macmillan*, 1890.

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Part I.—UTILITY OF EACH COMMODITY ASSUMED TO BE DEPENDENT ONLY ON THE QUANTITY OF THAT COMMODITY.

CHAPTER I.

UTILITY AS A QUANTITY.

§ 1.

THE laws of economics are framed to explain facts. The conception of utility has its origin in the facts of human preference or decision as observed in producing, consuming and exchanging goods and services.

To fix the idea of utility the economist should go no farther than is serviceable in explaining *economic* facts. It is not his province to build a theory of psychology. It is not necessary for him to take sides with those who wrangle to prove or disprove that pleasure and pain alone determine conduct. These disputants have so mangled the ideas of pleasure and pain that he who follows them and their circular arguments finds himself using the words in forced senses.

Jevons makes utility synonymous with pleasure. Cairnes* objects and claims that it leads to a circular definition of value. The circle is however at the very beginning and vitiates psychology not economics; the last dollar's worth of sugar (we are told) represents the same quantity of pleasurable feeling as the last dollar's worth of dentistry. This may be true as a mere empty definition, but we must beware of stating it, as a real "synthetic proposition,"† or of connecting it with the mathematics of sensations‡ as did Edgeworth.§

The plane of contact between psychology and economics is *desire*. It is difficult to see why so many theorists endeavor to obliterate the distinction between pleasure and desire.¶ No one ever denied that economic acts have the invariable antecedent, desire. Whether the necessary antecedent of desire is "pleasure" or whether independently of pleasure it may sometimes be "duty" or "fear" concerns a phenomenon in the second remove from the economic act of choice and is completely within the realm of psychology.

We content ourselves therefore with the following simple psychoeconomic postulate:

Each individual acts as he desires.

* Pol. Econ., p. 21.

† Kant, Critique Pure Reason, Introduction.

‡ Ladd, Physiological Psychology, p. 361.

§ See above (Preface).

¶ See Sidgwick, Methods of Ethics, Chap. IV.

§ 2.

The sense in which utility is a quantity is determined by three definitions:

(1) For a *given individual* at a *given time*, the utility of A units of one commodity or service (*a*) is equal to the utility of B units of another (*b*), if the individual has *no desire* for the one to the exclusion of the other.

A and B are here used as numbers. Thus if the first commodity is sugar and the second calico and if the individual prizes 2 pounds of sugar as much as 10 yards of calico, A is 2 and B is 10.

(2) For a given individual, at a given time, the utility of A units of (*a*) *exceeds* the utility of B units of (*b*) if the individual prefers (has a *desire* for) A to the exclusion of B rather than for B to the exclusion of A. In the same case the utility of B is said to be *less* than that of A.

The third definition will be given in § 4.

The two preceding definitions are exactly parallel to those of any other mathematical magnitude.

Thus: two forces are equal if at the same time they alone act on the same particle in opposite directions and *no* change of motion results. One is greater when additional motion is produced in its direction. Again: "two masses are equal which if moving with equal velocities along the same straight line in opposite directions and impinging on each other are reduced to rest by the collision."* Two geometrical magnitudes are equal if they can be made to coincide, etc., etc.

Just as coincidence is the test of equality and inequality of geometrical figures, and the tip of the scales the test of equality and inequality of weights, so is the desire of the individual, the test of the equality and inequality of utilities. It is to be noted that in each definition of equality the word "*no*" or some equivalent occurs. A standard mode of cancellation is thus designated.

§ 3.

Let us see how these definitions of utility apply to an act of purchase. An individual I enters a market with fixed prices to exchange some of a commodity (*a*) for another (*b*). We may suppose prices to be such that he gives one gallon of (*a*) and receives two bushels of (*b*), then a second gallon for two more bushels and so on

* Price, *Calculus*, vol. iii, p. 316.

until finally he has given **A** gallons and received **B** bushels. At what point does he stop?

Although the "exchange values" of **A** gallons of (*a*) and **B** bushels of (*b*) are equal, their *utilities* (to **I**) are not. He prefers **B** to the exclusion of **A**, for his act proves his preference (postulate). Therefore by definition (2) the utility of **B** exceeds that of **A**.

We may write:

$$\text{ut. of B} > \text{ut. of A.}$$

Why then did he cease to buy (*b*)? He sold exactly **A** gallons for **B** bushels. By stopping here he has shown his preference to buy no *more* (postulate). *Ergo* the utility of a small increment, say another bushel of (*b*) is less than the utility of the corresponding number of gallons of (*a*) (Def. 2). Likewise he prefers to buy no *less*. *Ergo* the utility of a small decrement, say one less bushel is greater than the gallons for buying it. Now by the mathematical principle of continuity, if the small increment or decrement be made infinitesimal dB , the two above *inequalities* become indistinguishable, and vanish in a common *equation*, viz:

$$\text{ut. of } dB = \text{ut. of } dA$$

dB and dA are here *exchangeable* increments. But the last increment dB is exchanged for dA at the same rate as **A** was exchanged for **B**; that is

$$\frac{A}{B} = \frac{dA}{dB}$$

where each ratio is the ratio of exchange or the price of **B** in terms of **A**.

$$\text{or} \quad \frac{B}{dB} = \frac{A}{dA}$$

multiplying this by the first equation, we have:

$$\frac{\text{ut. of } dB}{dB} \cdot B = \frac{\text{ut. of } dA}{dA} \cdot A$$

which may be written:*

$$\frac{dU}{dB} \cdot B = \frac{dU}{dA} \cdot A.$$

The differential coefficients here employed are called by Jevons "final degree of utility,"† and by Marshall "marginal utility."‡ Hence the equation just obtained may be expressed: *For a given*

* Cf. Jevons, *Pol. Econ.*, p. 99.

† Jevons, *Ibid.*, p. 51.

‡ Marshall, *Prin. of Econ.*, Preface, p. xiv.

purchaser at the time of purchase the quantity of the commodity purchased multiplied by its marginal utility equals the like product for the commodity sold. Or again: for a given purchaser the utilities of A and B, though actually unequal *would be* equal if every portion of A (and also of B) were rated at the same degree of utility as the last infinitesimal. This hypothetical equality underlies, as will subsequently appear, the notion of the equality of *values* of A and B.

§ 4.

But the two definitions (1) and (2) do not fully determine the sense in which utility is a quantity. To define when the “grades” of two parts of a highway are equal or unequal (*viz*: when they make equal or unequal angles with a horizontal), does not inform us when one shall be *twice* as steep as the other. It does not oblige us to measure the “grade” by the sine of the angle of elevation, or by the tangent, or by the angle itself. If the two highways were inclined at 10° and 20° respectively, the “grades” have a ratio of 1.97 if measured by sines, of 2.07 by tangents, and exactly 2 by angles. For a long time philosophers could define and determine when two bodies were equally or unequally hot. But not till the middle of this century* did physicists attach a meaning to the phrase “twice as hot.”

It is here especially that exactitude has been hitherto lacking in mathematical economics. Jevons freely confesses that “We can seldom or never affirm that one pleasure is an exact multiple of another.”†

Now throughout Part I the assumption is made that the utility of any one commodity (or service) depends on the quantity of that commodity or service, but *is independent of the quantities of other commodities and services*. This assumption is preliminary to the definition we seek.

Our first problem is to find the ratio of two infinitesimal utilities. If an individual I consumes 100 loaves of bread in a year the utility of the last infinitesimal, or to fix our ideas, the utility of the last *loaf* is (presumably) greater than what it would be if he consumed 150 loaves. What is their *ratio*? It is found by contrasting the utilities of the 100th and 150th loaves with a third utility. This

* The first thermodynamic definition of one temperature as a multiple of another was made by W. Thomson in 1848. See Maxwell, *Theory of Heat*, p. 155.

† p. 13.

third utility is that of oil (say) of which let B gallons be consumed by I during the year. Let β be that infinitesimal or small increment of B whose utility shall equal that of the 100th loaf. Now in substituting the hypothesis of 150 loaves *let us not permit our individual to alter B*, his consumption of oil.* The utility of the 150th loaf will be pronounced by him equal (say) to the utility of $\frac{1}{2} \beta$. Then the utility of the 150th loaf is said to be half the utility of the 100th.

That is, if :

ut. of 100th loaf = ut. of β , B being the total,
and ut. of 150th loaf = ut. of $\beta/2$, B being the total again,
the ratio is defined :

$$\frac{\text{ut. of 100th loaf}}{\text{ut. of 150th loaf}} = \frac{\beta}{\beta/2} = 2.$$

It is essential to observe that if the 100th loaf is twice as useful as the 150th when their ratio is defined as above in terms of increments of oil, it will also be twice as useful when the ratio is defined by any other commodity ; also that it matters not what total quantity (B) of oil or other commodity is employed.

This theorem may be thus stated:

Given (1) ut. of 100th loaf = ut. of β , B being total,
and (2) ut. of 150th loaf = ut. of $\beta/2$, B being total,
also (3) ut. of 100th loaf = ut. of γ , C being total,
To prove ut. of 150th loaf = ut. of $\gamma/2$, C being total,

where C is the quantity of another commodity (c) consumed by I in the same period and γ is such an increment of C that its utility shall equal that of the 100th loaf.

We may write from (1) and (3):

$$\begin{aligned} \text{ut. of 100th loaf} &= \text{ut. of } \beta = \text{ut. of } \gamma, \\ &\text{(100 loaves, B and C, being totals).} \end{aligned}$$

Now, if the first total (100 loaves) be changed to 150, B and C being unchanged, the above equation, dropping the first member, will still be true, viz :

$$\begin{aligned} \text{ut. of } \beta &= \text{ut. of } \gamma, \\ &\text{(150 loaves, B and C, totals),} \end{aligned}$$

for, by our preliminary assumption these utilities are independent of the quantity of bread.

* As a matter of fact an individual who, if consuming 100 loaves of bread would consume B gallons of oil might, if consuming 150 loaves, use also *more* oil. But this fact in no wise hinders our inquiring how he would reckon utilities if he used the *same* amount.

Since β and γ are infinitesimal it follows from the mere mathematical principle of continuity that:

$$\begin{aligned} \text{ut. of } \beta/2 &= \text{ut. of } \gamma/2, \\ &(\text{B, C, totals}), \end{aligned}$$

$$\therefore \text{ by (2) } \quad \begin{aligned} \text{ut. of 150th loaf} &= \text{ut. of } \gamma/2, \\ &(\text{150 loaves, C, totals}) \end{aligned}$$

Q. E. D.

Hence our definition becomes:

$$\frac{\text{ut. of 100th loaf}}{\text{ut. of 150th loaf}} = \frac{\gamma}{\gamma/2} = 2.$$

Likewise:

$$\begin{aligned} \frac{\text{ut. of 100th loaf}}{\text{ut. of 150th loaf}} &= \frac{\delta}{\delta/2} = 2, \\ &\text{etc., etc.,} \end{aligned}$$

all of which results harmonize.

Since C is any arbitrary quantity it follows that the definition of the above ratio is independent not only of the particular commodity employed as a means of comparison but also of the total quantity of that commodity.

It is to be noted here that if the utility of one commodity were dependent on the quantities of others, two applications of the definition would yield discordant results.*

We may state our definition in general terms as follows:

(3) The ratio of two infinitesimal utilities is measured by the *ratio of two infinitesimal increments of the same commodity* respectively equal in utility to the two utilities whose ratio is required, provided these increments are on the margin of equal finite quantities:

In general symbols this becomes:

$$\frac{\text{ut. of } dA}{\text{ut. of } dB} = n : \text{—if ut. of } dA = \text{ut. of } n dM$$

(M total),

and ut. of $dB = \text{ut. of } dM$

(M also total),

where n is any finite number, positive or negative, whole or fractional.

This definition applies not only to infinitesimal utilities of the same commodity (as of the 100th and 150th loaves of bread) but to those of different commodities or services.

* We shall afterward see how this affects our notions of utility (Part II, Ch. IV).

§ 5.

Definition (3) is perfectly analogous to other mathematical definitions. To define equality of forces does not fix their proportionality. This property is found in the additional definition: "The ratio of two forces is the ratio of their mass-accelerations." Before mechanics was a science, "*force*" stood for a "common sense" notion resolvable in the last analysis into a muscular sensation felt in pushing and pulling.* But to construct a positive science, force must be defined with respect to its connection with *space*, *time* and *mass*. So also, while utility has an original "common sense" meaning relating to feelings, when economics attempts to be a positive science, it must seek a definition which connects it with objective *commodity*.†

§ 6.

(4) *The marginal utility of a commodity* (as implied in § 3) *is the limiting ratio of the utility of the marginal increment to the magnitude of that increment.* Hence the ratio of two marginal utilities is the ratio of the utilities of two marginal increments divided by the ratio of these increments.

If the units of the commodity are small, the marginal utility is practically the utility of the last unit—for bread, of the last loaf, but if this loaf is sliced into 10 parts and these slices have different utilities, the marginal utility of bread is more nearly the utility of the last slice divided by $\frac{1}{10}$, and so on *ad infinitum*.

It is now an easy matter to find a unit of utility, the lack of which has been the reproach‡ of mathematical economists. The utility of the 100th loaf per year may be regarded as the unit of utility. Or in general:

* Spencer, First Principles, p. 169.

† Jevons, Marshall, Gossen, and Launhardt, omit indicating in any way what they mean by the ratio of utilities. Yet each of them embody the idea in their diagrams. Edgeworth (Math. Psych., p. 99) thinks "just perceivable increments [of pleasure] are equatable" and uses this "minimum sensible" as a unit in terms of which any pleasure is to be measured (in thought at least). His definition and mine show perhaps the very point of departure between psychology and economics. To measure a *sensation*, the minimum sensible is perhaps the only thinkable method (see Ladd, Physiological Psychology, p. 361). Here the phenomenon is subjective and so is its measure; while in economics the phenomena are objective and likewise their measure.

‡ Dr. Ingram, Article: Pol. Econ., Ency. Brit., xix, 399.

(5) *The marginal utility of any arbitrarily chosen commodity on the margin of some arbitrarily chosen quantity of that commodity may serve as the unit of utility for a given individual at a given time.*

This unit may be named a *util*.

Any unit in mathematics is valuable only as a divisor for a second quantity and constant only in the sense that the quotient is constant, that is independent of a third quantity. If we should awaken to-morrow with every line in the universe doubled, we should never detect the change, if indeed such can be called a change, nor would it disturb our sciences or formulæ.

§ 7.

With these definitions it is now possible to give a meaning to
 * Jevons' utility curve, whose abscissas represent the amounts of a commodity (say bread) which a given individual might consume during a given period and the ordinates, the utilities of the last (i. e. the least useful) loaf. For if corresponding to the abscissa 100 loaves an ordinate of arbitrary length (say one inch) be drawn to stand for the utility of the 100th loaf, we may use this as a unit (*util*.) For any other abscissa as 85 loaves whose marginal utility is (say) twice the former, the ordinate must be two inches, and so on. For any other commodity as oil the marginal utility of A gallons being contrasted with the utility of the 100th loaf of bread and this ratio being (say) three, an ordinate of three inches must be drawn. In all the curves thus constructed only one ordinate is arbitrarily selected, viz: that representing the utility of the 100th loaf.

§ 8.

Only differentials of utilities have hitherto been accounted for. To get the total utility of a given amount of bread we sum up the utilities for the separate loaves. Or in general:

(6) *The total utility of a given quantity of a commodity at a given time and for a given individual is the integral of the marginal utility times the differential of that commodity.*

That is:

$$\begin{aligned} \text{ut. of } (x) &= \text{ut. } (dx_1) + \text{ut. } (dx_2) + \dots + \text{ut. } (dx_n) \\ &= \int_0^x \text{ut. } (dx) \\ &= \int_0^x \frac{dU}{dx} dx. \end{aligned}$$

(7) *The name UTILITY-VALUE of a commodity may be given to the product of the quantity of that commodity by its marginal utility or*

$$x \cdot \frac{dU}{dx}$$

The name is suggested from money-value which is quantity of commodity times its price. (Cf. § 3).

(8) *The GAIN or consumer's rent is total utility minus utility value.*
That is :

$$\text{Gain} = \int_0^x \frac{dU}{dx} dx - x \cdot \frac{Ud}{dx}$$

It is the actual total utility diminished by that total utility which the commodity would have if it were all rated at the same degree of utility as the last or least useful increment.

It is to be observed that total utility and gain are *not experiences in time* but the sum of increments of utility *substitutionally* successive. The individual is to assign the marginal utility for the 90th loaf on the hypothesis that he were consuming 90 loaves per year, and then abandoning this supposition to substitute successively the hypothesis of 91 loves, 92, 93, etc., all for the same year. That is, a number of mutually exclusive hypotheses *for the same period* are thought of.

§ 9.

The preceding definitions have been expressed relative to a particular instant of time. This was because in actual life purchases are made by separate instantaneous acts. But the important commodity-magnitudes in economics are "tons per year," "yards per day," etc., bought, sold, produced, consumed. In order to make our definitions applicable to such quantities the element of time must be introduced. Hence the following supposition :

During the given period of time (that is, the period for which commodity-magnitudes are considered) the marginal utility to a given individual of a given commodity is the same at all instants at which he buys or consumes it or sells or produces it.

This involves supposing that prices do not vary, for prices (as we shall see) are proportional to marginal utilities.

A housewife buys (say) 10 lbs. of sugar at 10 cts. per pound. As she closes the bargain she roughly estimates that the last or tenth pound is about worth its price. She did not stop at five pounds for she wanted a sixth more than the 10 cts. it cost her. She may not buy sugar again for a fortnight. When she does, we shall suppose

the price to be the same, so that the last pound she then buys has the same utility as the last pound she previously bought. She may buy fifteen pounds. A fortnight later only five, all depending on her plans for using it. The whole yearly purchase may be 250 lbs. and we may write :

$$\begin{aligned} \text{ut. (10th lb.) Jan. 1} &= \text{ut. (15th lb.) Jan. 15.} \\ &= \text{ut. (5th lb.) Jan. 30.} \\ &= \text{etc.} \\ &= \text{ut. (250th lb.) for whole year.} \end{aligned}$$

Thus : *The marginal utility of a certain quantity of a commodity for a given period (say a year) is defined to be the marginal utility of that commodity on all occasions during that year at which it is bought or consumed, the sum of the individual purchases being the given yearly purchase and consumption.*

§ 10.

In the hypothetical case the marginal utility of 250 pounds per year equalled the marginal utility of 10 cts. In the same manner we may practically estimate the marginal utility of 200 pounds by supposing the price to be such that our housewife would buy 200 pounds. Thus a number of alternative suppositions are made *for the same period*. By means of these a utility curve can be constructed, one of the coördinates of which is the yearly consumption of sugar. To do this statistically is of course quite a different and more difficult though by no means hopeless proceeding.

Curves of this nature are the only ones to be here considered. But it is clear that there also exist utility curves for each time of purchase.* These would differ both from the "yearly" curve as well as from each other.

§ 11.

To meet a possible objection it must be pointed out that the use of a "yearly" utility curve assumes no nice calculation on the part of the individual as to his future income and receipts. He may even be and generally is totally ignorant of the number of pounds of butter he consumes per year. He creeps along from purchase to purchase and only at these individual acts does he estimate his needs and his abilities. Yet if he always completes his purchase with the same estimate of marginal utility as measured against other com-

* They would be the curves of Fleeming Jenkin : *Graphic Representation of Supply and Demand*. Grant's *Recess Studies*, p. 151, *Edinburgh*, 1870.

modities, this must be the marginal utility for the year and the total yearly purchase is the quantity which bears this marginal utility. This marginal utility or "final" degree of utility of the commodity for the year is clearly not the utility of the last amount chronologically (that is Dec. 31), but the utility of the least useful part of any and each of the separate purchases.

§ 12.

It may further be objected that there is a fitful element in the problem which the above supposition ignores. We have supposed prices do not vary during the given period and also that the individual's utility-estimate does not vary. It may justly be claimed that not only do prices vary from day to day, but even if they did not, the individual's estimate of utility is fitful and, although at the instant he closes a bargain his estimate of utility must be regarded as corresponding to the given price, yet he is likely generally and certain sometimes to regret his action so that if he were to live the year over again he would act very differently.

This objection is a good illustration that a microscopic view often obscures the general broad facts. As a matter of fact the use of a period of time tends to eliminate those very sporadic elements objected to. First, though prices vary from hour to hour under the influence of excitement and changing rumors, and from season to season under causes meteorological and otherwise, yet these fluctuations are self-corrective. The general price through the year is the only price which is independent of sporadic and accidental influences. This general price is not the arithmetical mean of the daily prices but a mean defined as such that had it been the constant price during the period the amounts bought and sold would have been just what they actually are. Secondly, the individual caprice is self-corrective. If a man lays in too large a stock of provisions this week he will buy less next. The theory of probabilities therefore substantially harmonizes the theoretical and the actual. The apparently arbitrary suppositions regarding constancy of price, etc., may be looked upon as convenient definitions of an ideal average as just described.

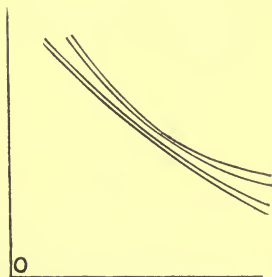
One observation however must not be overlooked. Although accidental variations of price or choices of caprice afford both positive and negative errors and thus largely cancel each other, yet the effect on the *total utility* and the *gain* is always to diminish them. To buy too much or too little, to sell too cheap or too dear will be

equally sure to diminish gain. Herein lies the virtue of insurance and the vice of gambling. Neither alters (directly) the amount of wealth. But insurance modifies and gambling intensifies its fluctuations. Hence the one increases the other decreases *gain*.

§ 13.

Again it may be objected to the foregoing definitions that the use of infinitesimals is inappropriate since an individual does not and cannot reckon infinitesimals. The same apparent objection attaches to any application of the calculus. We test forces by weights but cannot weigh infinitesimal masses nor do they probably exist; yet the theory of forces begins in infinitesimals. We apply fluxions to the varying density of the earth, though we know that if we actually take the infinitesimal ratio of mass to volume we shall generally get zero since matter is discontinuous. The pressure of a confined gas is due to collisions of its molecules against the containing vessel. As each molecule rebounds the change of momentum divided by the infinitesimal time is the pressure. Yet at any actual instant the value of this fluxion is quite illusory. But these facts do not militate against the use of fluxions for a thinkable theory of forces, density and gaseous pressure. In cases of discontinuity fluxions have important applications though infinitesimals may not exist. The rate of increase of population at a point in time is an important idea, but what does it mean? It is convenient to define it as infinitesimal increase of population divided by the infinitesimal time of that increase though we know that population increases discontinuously by the birth of whole individuals and not of infinitesimals.

1.



Practically we can find the *approximate* marginal utility of a commodity just as we *approximately* find the rate of increase of population by taking small increments in place of infinitesimals.

In actual fact inequality of utilities is the rule and absolutely equal utilities never exist. Instead of a curve of utility we should draw a belt (fig. 1) whose limits are ill-defined and whose width in general depends on the amount of antecedent attention which the individual has bestowed on the alternative amounts and modes of consumption.

§ 14.

Utility as defined in the preceding sections does not involve the economist in controversy as to the laws of the subjective states of pleasure and pain, the influence of their anticipation as connected with their probabilities,* the vexed questions whether they differ in quality as well as in intensity and duration,† whether duty can or cannot exist as a motive independently of pleasure,‡ etc.

It does not follow that these discussions have no meaning or importance. Doubtless pleasure and pain are connected with desire and doubtless they have an important biological and sociological function as registering "healthful" or "pathological" conditions.§ But the economist need not envelop his own science in the hazes of ethics, psychology, biology and metaphysics.

Perhaps utility is an unfortunate word to express the magnitude intended. Desirability|| would be less misleading, and its opposite, undesirability is certainly preferable to dis-utility. "Utility" is the heritage of Bentham and his theory of pleasures and pains. For us his *word* is the more acceptable, the less it is entangled with his *theory*.

§ 15.

This chapter may be thus summarized:

Postulate: Each individual acts as he desires.

Definitions of utility.

(2) and (1) ut. of A \geq ut. of B
if the given indiv. at the given time
prefers A to B or neither.

(3) $\frac{\text{ut. of } dA}{\text{ut. of } dB} = n$
if ut. of $dA = \text{ut. of } n dM$ (M total)
and ut. of $dB = \text{ut. of } dM$ (M also total).

(4) $\frac{dU}{dA} \equiv$ Marginal utility.

(5) $\frac{dU}{dA} \equiv$ Unit of utility (*util.*) (A being given).

* Jevons, p. 72.

† Jevons, p. 28, etc.

‡ Darwin, *Descent Man*, I, p. 76, Sidgwick, *Methods Ethics*, Ch. IV.

§ Marshall, *Prin. of Econ.*, p. 181, Spencer, *Data of Ethics*, p. 79, L. Stephen, *Science of Ethics*, p. 366.

|| Marshall, *Prin. of Econ.*, p. 306.

$$(6) \quad \int_0^A \frac{dU}{dA} \cdot dA \equiv \text{Total utility.}$$

$$(7) \quad A \cdot \frac{dU}{dA} \equiv \text{Utility-value.}$$

$$(8) \quad \int_0^A \frac{dU}{dA} \cdot dA - A \cdot \frac{dU}{dA} \equiv \text{Gain.}$$

$$\text{Assumption:} \quad \frac{dU}{dA} \equiv \text{Function of } A \text{ only.}$$

Corrollaries: From (1) and (2) and postulate, when B is exchanged for A

$$\frac{dU}{dB} \cdot B = \frac{dU}{dA} \cdot A.$$

From (3) and assumption, in the equation: $ut. \text{ of } dA \text{ ut. of } dB = n$, the value of n is independent of the particular commodity and of its quantity M used in the definition.

CHAPTER II.

MECHANISM.

§ 1.

Scarcely a writer on economics omits to make some comparison between economics and mechanics. One speaks of a "rough correspondence" between the play of "economic forces" and mechanical equilibrium. Another compares uniformity of price to the level-seeking of water. Another (Jevons) compares his law of exchange to that of the lever. Another (Edgeworth) figures his economic "system" as that of connected lakes of various levels. Another compares society to a plastic mass such that a "pressure" in one region is dissipated in all "directions." In fact the economist borrows much of his vocabulary from mechanics. Instances are: Equilibrium, stability, elasticity, expansion, inflation, contraction, flow, efflux, force, pressure, resistance, reaction, distribution (price), levels, movement, friction.

The student of economics thinks in terms of mechanics far more than geometry, and a mechanical illustration corresponds more fully to his antecedent notions than a graphical one. Yet so far as I know, no one has undertaken a systematic representation in terms of mechanical interaction of that beautiful and intricate equilibrium which manifests itself on the "exchanges" of a great city but of which the causes and effects lie far outside.

§ 2.

In order to simplify our discussion the following preliminary suppositions* are made :

(1) A single isolated market large enough to prevent one man's *consciously* influencing prices.

(2) A given period, say a year.

(3) During this period the rate of production and consumption are equal and such that stocks left over from last year and stocks held over for next may have an influence which is unvarying or which is not a function of quantities produced and consumed during the year. Their influence is accounted for in the *form* of the curves to be employed just as is the influence of climate, population, political conditions, etc.

(4) Each individual in the market knows all prices, acts freely and independently and preserves the same characteristics during the period, so that the *forms* of his utility curves do not change.

(5) All articles considered are infinitely divisible and each man free to stop producing and consuming at any point.

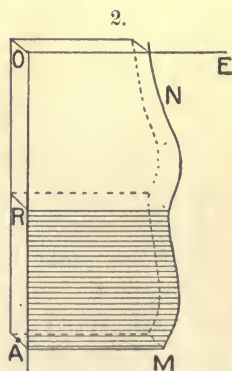
(6) The marginal utility of consuming each commodity decreases as the amount consumed increases, and the marginal disutility of producing each commodity increases as the amount produced increases.

(7) As stated in Chapter I, § 4, the utility of each commodity is independent of the quantities of other commodities and likewise for disutility.

§ 3.

In fig. 2 let the curve MN be drawn with axes OE and OA. This curve is such that the shaded area represents any amount of the given commodity consumed by the given individual in the given period of time, and the ordinate (drawn downward) from O to R represents its marginal utility. The figure evidently interprets the fact that as the quantity of commodity increases its marginal utility decreases and *vice versa*.† OA indicates what the marginal utility would be if only an infinitesimal quantity of the commodity were consumed.

Furthermore let a glass cistern (fig. 2) be formed having the figure OAMN for its front



* These are (essentially) those of Auspitz und Lieben.

† For the further properties of the curve MN and its relation to the curves of Jevons, Auspitz und Lieben and Fleeming Jenkin, see Appendix I, Division II.

face and a uniform thickness of unity so that the volume of liquid contained is always equal numerically to the area on the face. Hence the amount of liquid in the cistern may represent commodity and the distance of its surface from O, its marginal utility.

§ 4.

ONE COMMODITY (A)—ONE CONSUMER (I).

Let fig. 2 represent the utility cistern for I relative to A. Let us select as a unit of utility the marginal utility of money supposing this to be constant. Thus the cistern is (say) one inch in thickness; the number of cubic inches of water represents the number of units of the commodity (yards, gallons, or pounds, etc.) consumed by the individual during a given period (say a year) and the ordinate OR (in inches) represents the number of dollars at which the individual prizes the last yard or gallon (say) of the commodity.

Since the market is large enough to prevent any conscious influence on the price by the individual I, he acts with reference to a fixed price (p dollars). He will therefore consume such an amount of A that its marginal utility in dollars equals that of the price p , that is, the cistern will be filled till $OR = p$. This is evident, for if *less* should be consumed OR would be greater than p , that is, a little more commodity would be valued more highly than the dollars exchanged for it and so would be purchased, and if *more* should be consumed, reverse considerations hold.

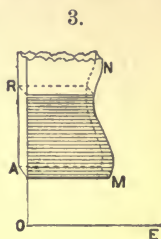
If the price rises OR will increase and less be consumed but if it falls, more. If the price falls to zero as is the case for water and air the quantity consumed fills the whole cistern up to the horizontal axis. This volume is therefore the quantity of *maximum satisfaction*. If the price rises to OA the individual will cease consuming. This price is therefore the limiting *maximum price* at which he will buy.

The liquid contents of the cistern may be regarded as made up of successive horizontal infinitesimal layers each representing an increment of commodity. The height or distance of each layer from the origin represents the degree of utility of that layer. The last or top layer is on the *margin* of the whole and its vertical distance from the origin is the degree of utility of that marginal layer or increment of the commodity or briefly its marginal utility. Thus the margin of consumption has in the cistern an actual physical analogue.

§ 5.

ONE COMMODITY—ONE PRODUCER.

The definitions of utility in Chapter I apply also to negative utility or disutility. Corresponding to all that has been said relative to consumption are analagous remarks for production. Thus we may construct a disutility curve and cistern (fig. 3) marginal disutility (O R) being measured upward from the origin. If utility be measured in money as in the last section, O A represents the minimum price at which the individual will produce the commodity, O R the current price and the shaded area (or the cubic contents behind it) the output.



The marginal disutility of production is here represented as decreasing as the amount of the product increases. This assumes a "law of diminishing returns." It is true that this law is seldom if ever rigorously true when applied to small amounts ; that is, the cost or disutility of producing the first unit is not less but greater than that of producing the second. But the marginal disutility continues to decrease only up to a certain point, after which it increases. This is usually true even of manufacturing. American bicycle factories are now running behind their orders. If they attempted to run their factories at a higher velocity the cost of the additional product would become greater than its price. In general at the actual rate at which a concern produces, the law of increase of disutility applies.

It would be possible by looping the curve MN near the bottom to make a cistern of such a form as to represent correctly both the law of decrease and increase, but as we are chiefly concerned with the point of equilibrium and as at equilibrium the law of increase usually applies such complicated curves are not here drawn.

If a producer has such a productive capacity as to *consciously* influence prices by a variation of his product, he may find his maximum gain by restricting his output even at a point where the law of decreasing disutility applies ; for if he should extend his production, his price might decrease faster than his cost.

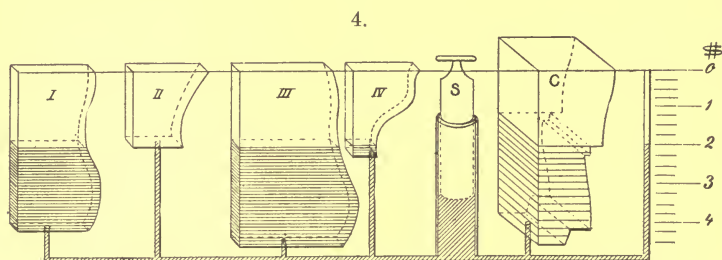
These considerations together with the important one that in a productive enterprise the expenses are classified as "fixed" and "running," make many interesting cases of instability and indeterminateness and lead to the discussion of monopolies, combinations, rate wars, etc., etc. These each require special analysis. In the

present memoir, however, attention is confined to those features of production which are strictly analogous to consumption. (See Appendix II, § 8.)

§ 6.

ONE COMMODITY—MANY CONSUMERS.

Let fig. 4 represent the utility cisterns for all individuals I, II, III, IV, . . . N, in the market and let utility be measured in money



as before, the marginal utility of money being considered constant (say 1 util.).

The water in the connecting tubes (represented by oblique shading) does not stand for commodity.

The water will seek its own level. This is exactly what happens in the economic world and may be stated in the theorem: *A given amount of commodity to be consumed by a market during a given period will be so distributed among the individuals that the marginal utilities measured in money will be equal. Furthermore the marginal utility thus determined will be the price.*

This follows, for there can be but one price, and each individual will make his marginal utility equal to it, as shown in § 4.

If the stopper,* S, be pressed, more liquid (commodity) flows into the cisterns, there is an inevitable change in level and the price decreases. When it cheapens to 2, II begins to indulge. It is for the first time "within his reach."

It is to be noted that from the standpoint of a single individual the existence of the general price level is an unalterable fact and the amount which he consumes is accommodated to it, just as the general water level in several hundred cisterns may be said to determine

* A rubber compression ball would be used in practice. Throughout the descriptions, the mechanisms are those simplest to delineate and in many cases not those which might be actually employed.

the amount in any particular cistern. But, for the system as a whole, the price level is a consequence of the amount of commodity marketed. What appears as cause in relation to effect to an individual is effect in relation to cause for the whole market.

The quantities of commodity and the marginal utilities mutually limit and adjust themselves, subject to three conditions, (1) that due to the forms of cisterns, (2) that due to the total amount of commodity marketed, (3) uniformity of price, or of marginal utility.

§ 7.

ANALYTICAL.

The algebraic interpretation of the preceding mechanism or of the economic phenomena themselves is as follows :

Let $A_1, A_2, A_3, \dots A_n$ be the (as yet unknown) quantities of the commodity consumed by I, II, III, \dots N. Let

$$\frac{dU}{dA_1}, \frac{dU}{dA_2}, \dots, \frac{dU}{dA_n}$$

be their (unknown) marginal utilities. Then the three conditions mentioned in § 6 become :

(The unit of utility (util.) is that of the marginal dollar.)

$$(1) \quad \left\{ \begin{array}{l} \frac{dU}{dA_1} = F_1(A_1) \\ \frac{dU}{dA_2} = F_2(A_2) \\ \dots \\ \frac{dU}{dA_n} = F_n(A_n) \end{array} \right\} \begin{array}{l} n \text{ equations.} \\ 2n \text{ unknowns.} \end{array}$$

$$(2) \quad \left\{ A_1 + A_2 + A_3 + \dots + A_n = K \right\} \begin{array}{l} 1 \text{ equation.} \\ \text{no new unknowns.} \end{array}$$

(Unit of utility is that of marginal dollar.)

$$(3) \quad \left\{ \frac{dU}{dA_1} = \frac{dU}{dA_2} = \frac{dU}{dA_3} = \dots = \frac{dU}{dA_n} \right\} \begin{array}{l} n-1 \text{ independent equations} \\ \text{no new unknowns.} \end{array}$$

Hence the number of equations is :

$$n+1+(n-1)=2n$$

and of unknowns :

$$2n+0+0=2n.$$

Therefore the numbers of equations and unknowns are equal and all quantities and utilities are determinate.

§ 8.

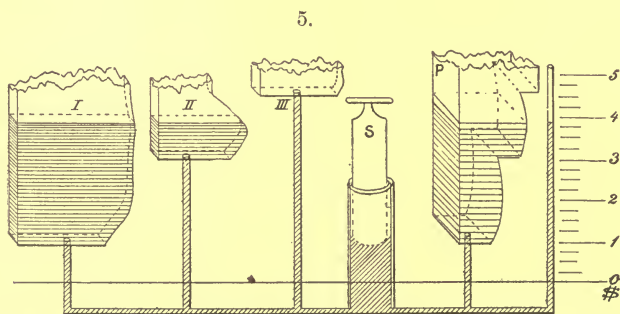
AGGREGATE COMMODITY.

Let C, fig. 4, be the *average curve** of all the individual curves, I, II, III, . . . N, and let the new cistern have a thickness equal to the sum of the thicknesses of the individual cisterns. Then as much water will be in the aggregate cistern as in all the others.* The water in the aggregate cistern may be regarded as a repetition of the contents of the individual cisterns. It represents no new commodity.

In cistern C it is almost too evident to require mention that an increased supply of this commodity (indicated by pressing the stopper) reduces the price while a diminished supply increases it. This fact is all that is usually exhibited in "demand curves" such as of Fleeming Jenkin.†

§ 9.

Fig. 5 and completely analogous explanations apply to production cisterns.



* Formed as follows : Select *pts. of like price* on the individual curves, that is, pts. of like ordinates (as $y_1, y_2, y_3, \dots y_n$) and using the same ordinate for the new ordinate, take the average of their abscissas for the new abscissa and make the thickness of the new cistern equal to the sum of the thicknesses of all the individual cisterns. Then if in such a cistern liquid be allowed to flow to the level of the individual cisterns the amount of liquid contained in it will equal all that contained in the individual cisterns. For evidently the free surface of the water in the large cistern equals in area the total free surfaces in the small, and as such equality of horizontal infinitesimal layers or laminæ holds true at all successive levels, it holds true of the sums of the layers.

† The Graphic Representation of Supply and Demand. Grant's recess studies, p. 151.

§ 10.

The mechanism above described simply gives exactness to a common imagery in economics, such as "margin," "price levels," "planes" of demand (and supply) and: "a plentiful supply brings the commodity 'within reach' of consumers."

The notion of a cistern is also natural. Says Adam Smith: "The demand for food is limited by the capacity of a man's stomach." Not only is there a "limit," but the demand for food has varying intensities according to the degree in which the stomach is filled. The economic man is to be regarded as a number of cisterns or stomachs, each relative to a particular commodity.

CHAPTER III.

ONE CONSUMER (OR PRODUCER)—MANY COMMODITIES.

§ 1.

The next problem is that of the distribution of an individual's income over all the commodities in the market.

The income-spender considers not only the price of a given article in determining how much of that article he will take but also the relative advantages of using the same money for other things.

The manner in which this consideration affects the mechanism described in Chapter II is through the utility of money.*

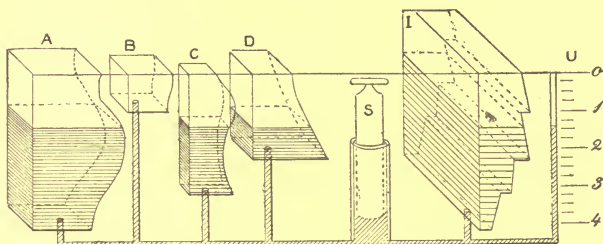
In the last chapter, while the price varied in relation to the quantity of commodity, each individual's valuation or marginal utility of money was regarded as constant. This is nearly true *when only one commodity* is considered. In the present chapter, on the other hand, the individual valuation of money varies in relation to the quantity of money income, but the prices of all commodities are regarded as constant. This is nearly true *when only one individual* is considered.

* This sort of interaction, especially when extended to several consumers and several commodities (as in the next chapter), presented the most difficulties to the Auspitz und Lieben Analysis; on p. 63 in §16 they say: "Welche Aenderung eine Einzelkurve erleidet wenn sich die Vermögensverhältnisse des betreffenden Individuums ändert, lässt sich im allgemeinen nicht verfolgen. Wenn auch in der Regel die Ordinaten der kurven länger werden, wenn das Individuum wohlhabender wird, so wird dies doch keineswegs gleichmässig der Fall sein, vollends nicht, wenn wir verschiedene Artikel betrachten."

§ 2.

Let the individual I distribute his income over the commodities A, B, C, M. Let the thickness of each cistern in fig. 6 be proportional to the price of the commodity it contains. Thus if A bears a price of \$2 per yard, B \$1 per gallon and C $\$ \frac{1}{2}$ per pound, the thickness of cistern B is 2, of B 1, and of C $\frac{1}{2}$.

6.



Let the unit of area on the front surface of each cistern represent a unit of commodity, yards for A, gallons for B, etc.

Then the volume of liquid will evidently indicate the money value of the commodity, for it equals the front area times the thickness, that is, the quantity of commodity times its price. Moreover the sum of all the water will indicate the whole* income in dollars. The unit of volume thus represents not a yard, gallon, pound, etc., but a *dollar's worth* in each case. For A it would be $\frac{1}{2}$ yard, for B 1 gallon, for C 2 lbs., etc.

Accordingly let the curves which limit the cisterns be so constructed that the ordinates shall represent marginal utility *per dollar's worth* not per yard, gallon, etc.

§ 3.

The liquid will seek its own level corresponding to the economic proposition: *A consumer will so arrange his consumption that the marginal utility per dollar's worth of each commodity shall be the same.*

* Saving is here regarded as a form of spending, the commodity purchased being capital. The analysis implies that the marginal utility of saving a dollar equals the marginal utility of the dollar spent in other ways. This would be elaborated from another standpoint in a theory of distribution. Cf. Launhardt; Volkswirtschaftslehre; Böhm-Bawerk; Kapital und Kapitalzins.

This follows because if the individual should vary his consumption from such a distribution, by expending an extra dollar on A he would divert that amount from another article or articles, say B. Then the level in the A cistern would be higher than in the B, which interpreted, is the dollar spent on A had less utility than if it had been devoted to B.

If the stopper be pressed, i. e. if the individual had had a larger income, the valuation of the last dollar's worth of each commodity decreases, or the marginal utility of money decreases. If it becomes at the maximum marginal utility of B he begins to spend on B. As it is in the figure he "cannot afford it."

The amount spent on any particular commodity depends on the general water level, i. e. the valuation of a dollar, while reversely the valuation of money depends on the total amount to be spent on all commodities.

Three conditions suffice to make the distribution determinate: (1) that due to the forms of the cisterns, (2) the condition that the total income equals a specified amount, (3) uniformity of marginal utility (per dollar's worth) of each commodity.

§ 4.

ANALYTICAL.

Let A, B, C, . . . M be the (unknown) quantities of various commodities consumed by I, and $\frac{dU}{dA}, \dots, \frac{dU}{dM}$ their (unknown) marginal utilities. Let p_a, p_b, \dots, p_m be their (known) prices.

Then the above three conditions become:

(The unit of commodity is the dollar's worth.)

$$(1) \quad \left\{ \begin{array}{l} \frac{dU}{dA} = F(A) \\ \frac{dU}{dB} = F(B) \\ \dots \\ \frac{dU}{dM} = F(M) \end{array} \right\} \begin{array}{l} m \text{ equations.} \\ 2m \text{ unknowns.} \end{array}$$

$$(2) \quad \left\{ Ap_a + Bp_b + \dots + Mp_m = K \right\} \begin{array}{l} 1 \text{ equation.} \\ \text{no new unknowns.} \end{array}$$

(Unit of commodity is dollar's worth.)

$$(3) \quad \left\{ \begin{array}{l} \frac{dU}{dA} = \frac{dU}{dB} = \dots = \frac{dU}{dM} \end{array} \right\} \begin{array}{l} m-1 \text{ independent equation.} \\ \text{no new unknowns.} \end{array}$$

Number of equations $= m+1+m-1 = 2m$.

“ “ unknowns $= 2m+0+0 = 2m$.

Hence the system is determinate.

§ 5.

AGGREGATE INCOME.

Let I, fig. 6, be the average curve* of all the separate commodity curves A, B, C, . . . M, and let the new cistern have a thickness equal to the sum of the thicknesses of the original cisterns. Then the water in the resultant cistern equals the sum of that in the components.*

The liquid in the new cistern represents the money collectively considered and the ordinate the utility of the last dollar.

If this income increases, its marginal utility decreases and decreases in a law whose relation to the laws of utility for the separate commodities is shown by the relation of the resultant cistern to the components.

* In this case the average is not a simple arithmetical mean but a *weighted* average. Select *points of like utility* on the component curves, that is, points of equal ordinates. Average their abscissas, multiplying each by the ratio of the thickness of its cistern to that of the resultant cistern (viz: the sum of the thicknesses of the original cisterns). Thus if the thicknesses are $p_a, p_b, \dots p_m$ and the abscissas $x_a, x_b, \dots x_m$, the resulting thickness and abscissa (P and X) are:

$$P = p_a + p_b + \dots + p_m$$

$$X = \frac{x_a p_a + x_b p_b + \dots + x_m p_m}{p_a + p_b + \dots + p_m}$$

If in a cistern thus formed liquid enters to the level of the component cisterns, the liquid in the resultant cistern equals the total in the component. For the sum of the free surfaces in the component cisterns is

$$x_a p_a + x_b p_b + \dots + x_m p_m$$

and the free surface in the resultant is

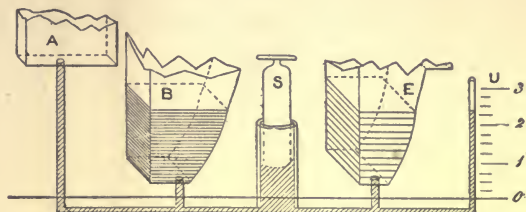
$$(p_a + p_b + \dots + p_m) \cdot \left(\frac{x_a p_a + x_b p_b + \dots + x_m p_m}{p_a + p_b + \dots + p_m} \right)$$

Since these two expressions are equal and this equality holds of infinitesimal layers at the free surface and so successively at all levels it must hold of the sums of these layers.

§ 6.

An analogous discussion applies to fig. 7. In place of a given income we must suppose a given amount of expenses to be met by the

7.



production of various commodities.* It is at this point that an important distinction between production and consumption enters, viz: in civilized life men find it advantageous to consume *many* things but to produce *few*. The discussion of this difference pertains to Part II.

CHAPTER IV.

M COMMODITIES—N CONSUMERS (OR PRODUCERS).

§ 1.

We have seen the laws of distribution of commodities from two points of view, by first restricting our discussion to one commodity among many consumers and afterward to one consumer among many commodities. Our discussion is like a tourist's view of a great city, who glances up each east and west street while riding along the same avenue and then takes a "cross town" course and sees each avenue from a single street. We are now to seek a bird's-eye view.

The variables and their variations which have been described are comparatively simple. But the possible variations in the more general case are so complicated that they can scarcely be seen or described without the aid of a mechanism.

* Borrowing capital is to be here regarded as a form of producing. The disutility of borrowing the last dollar equals the disutility of producing the last dollar's worth of goods. See foot note to § 2.

§ 2.

First of all an analysis will serve to set the two preceding discussions in a common point of view.

In any purchase the last infinitesimal commodity bought has a utility equal to that of the money given, that is :

$$\text{ut. of } dA = \text{ut. of } dm$$

$$\text{or :} \quad \frac{dU}{dA} dA = \frac{dU}{dm} \cdot dm \quad (\text{see Ch. I, § 3.})$$

$$\text{or :} \quad \frac{dU}{dA} = \frac{dU}{dm} \cdot \frac{dm}{dA}$$

$$\text{or :} \quad \frac{dU}{dA} = \frac{dU}{dm} \cdot p_a$$

where p_a is the money price.

That is, the marginal utility of a commodity (per pound, yard, etc.) equals the marginal utility of money (per dollar) times the ratio of exchange of money for commodity :

This equation is fundamental. In our first discussion (one commodity, various consumers) the marginal utility of money was supposed constant so that

$$\frac{dU}{dA} \propto p_a$$

or the marginal utility of a commodity is measured by its price.

In the second discussion the other factor, the price, was supposed constant, and :

$$\frac{dU}{dA} \propto \frac{dU}{dm}$$

or the marginal utility is measured by the valuation of money.

§ 3.

In the present chapter we are restricted to neither of these special suppositions. For the individual I, we may write

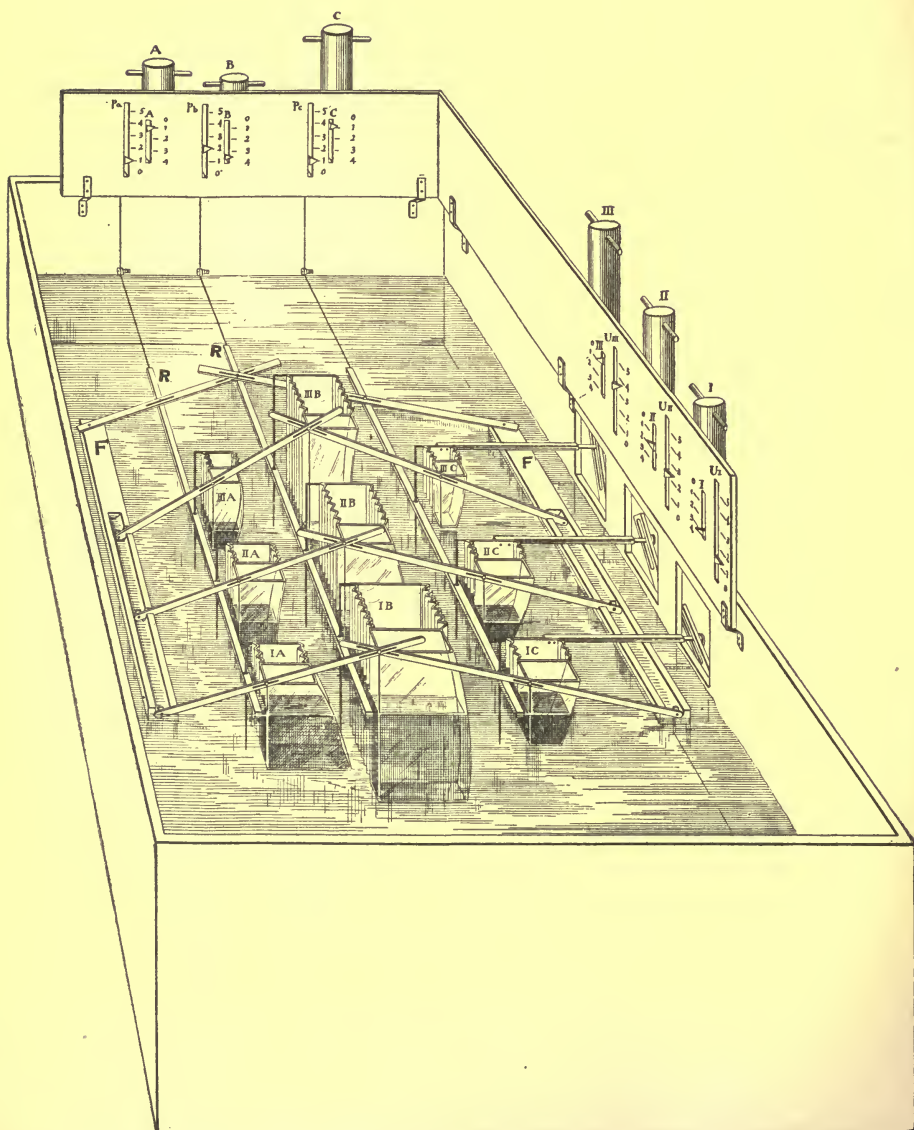
$$\frac{dU}{dA_1} = \frac{dU}{dm_1} \cdot p_a$$

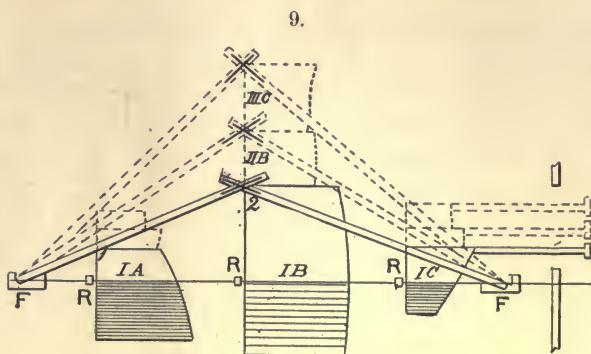
$$\frac{dU}{dB_1} = \frac{dU}{dm_1} \cdot p_b$$

.....

$$\frac{dU}{dM_1} = \frac{dU}{dm_1} \cdot p_m$$

8.

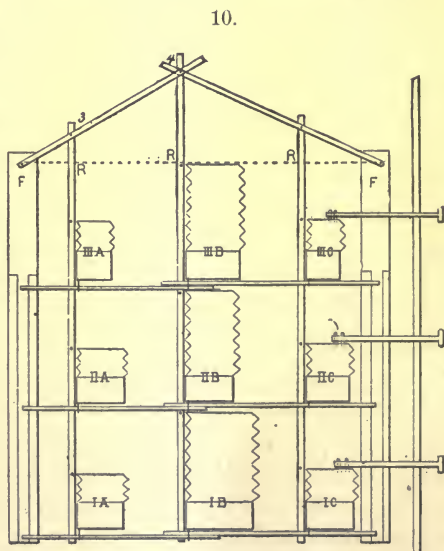




tank* and free to move only vertically (being so constrained by a telescope arrangement beneath and not shown in the diagram).

A glance at fig. 8 or fig. 10 (a plan of fig. 8) will show that any right and left row of cisterns is relative to a single individual and corresponds to fig. 6 and that any front and back row is relative to a single commodity and corresponds to fig. 4.

The water in these cisterns must be subjected to two sets of conditions, first: the sum of all the contents of IA, IIA, IIIA, etc., shall be a given amount (viz: the whole of the commodity A consumed during the given period) with a like given sum for the B row, C row, etc., secondly: the sum of IA, IB, IC, etc., each multiplied by a coefficient (the price of A, of B, of C, etc.), shall be given (viz: the whole income of I during the period) with a like given sum for the II row, III row, etc.



* The level of water in each cistern is intended to be that of the level in the tank. The only constant cause which will make the levels different is the difference between the weight of the whole cistern and the weight of the water displaced by its walls (partly wood) which difference is slight, may be plus or minus, and is equal to the weight of the excess or deficit of water in the cistern above or below the outside level.

To realize these two sets of conditions each cistern is divided into two by a vertical partition of wood. The front compartments are all of unit thickness one inch (say). All front compartments belonging to the same front-and-back row are mutually connected by tubes (in the tank but not in connection with the water of the tank) thus fulfilling the first set of conditions.

The thickness of the back compartments is adjustable but is (as will soon appear) constrained to be always equal to the price, thus if the price of A is \$1, of B \$3 and C \$1.20, the thickness of all cisterns in the A row will be 1, in the B row 3 and in the C row 1.2 (inches).

Since the thickness of the front compartment is unity, the contents of each back compartment equals the contents of the front multiplied by the number of inches of thickness of the back cistern, that is the back compartment contains a volume of water equal to the amount of the commodity multiplied by its price. It contains therefore the *money value* of the commodity. The double cistern represents the double light in which each commodity is commonly regarded—so many pounds, yards, etc. and so many dollar's worth.

All back compartments of the same right and left rows are mutually connected by tubes—that is the sum of their contents is given—thus fulfilling the second set of conditions.

The back compartments can change their thicknesses, as the walls at the right, left and bottom are of flexible leather; the back plane is kept parallel to the wood partition by two double "parallel rules" not diagramed.

There remains to be described the system of levers. The purpose of these levers is to keep the continuous ratio of marginal utilities, the same for all individuals and equal to the ratio of prices.

First there is a system of oblique* levers (F12, etc., fig. 9) connected by sliding pivots with the tops of the cisterns and having their lower extremities hinged to wooden floats F, the hinges being on the level of the water of the tank. These floats are free only to shift laterally. It is evident from the similar triangles FR1 and FR2 in fig. 9 that the ordinates of the two cisterns IA and IB are proportional to the distances of the A and B rods R and K from the hinge in the left float F. Likewise in the row behind, the ordinates are proportional to the same distances. Hence the four ordinates are proportional to each other and in general all the

* A convenient angle for each lever can be assured by a careful selection of commodity units. Thus if the marginal utility *per pound* gives inconvenient ordinates in the A row, reconstruct the cisterns in that row so that the ordinates are lengthened to represent marginal utility per ton or shortened for the ounce.

ordinates of the front row are proportional to those of the row next behind, also of the second row behind and so on. Remembering that each ordinate is a marginal utility we have:

$$\frac{dU}{dA_1} : \frac{dU}{dB_1} : \dots = \frac{dU}{dA_2} : \frac{dU}{dB_2} : \dots = \frac{dU}{dA_3} : \frac{dU}{dB_3} : \dots = \dots$$

which is the required condition that marginal utilities must be proportional (§3).

Secondly there are the horizontal levers (F34, etc., fig. 10) lying on the surface of the water in the tank. These relate to prices. The sliding pivots 3, 4, etc. are connected with rods RRR, which in turn are connected by vertical pins with the rear walls of the cisterns. A motion of one of these rods causes all back compartments in that row to expand or shrink in unison. The pivots 3, 4, etc. are so situated on these rods that if the levers F34, etc. should assume a right-and-left position along the dotted line FF, the back compartment of every cistern would be completely closed. Hence R3 equals the thickness of each back compartment in the A row, R4 the corresponding thickness in the B row and so on.

By the similar triangles FR3 and F34 in fig. 10, it is clear that the lines R3 and R4, and consequently the rear thickness in the A and B rows are proportional to the distances of the A and B rods R and R from the float F. But we have just seen that the ordinates of IA and IB are proportional to these same distances. Hence the thicknesses of the back compartments of the cisterns are proportional to the ordinates of those cisterns, that is to marginal utilities. Hence we are free to call the thickness of each back compartment, the money* price of the commodity to which that cistern relates.

* Money is here used solely as a measure of value. It is not one of the commodities in the market. The high or low price of commodities in terms of this money is dependent entirely on the amount of it at which we agree to rate the yearly consumption of the market, that is the amount of liquid originally in the back cisterns. We are so accustomed to regard money as the medium of exchange and therefore as a commodity that we may not observe that it is perfectly possible to have a measure of value which is not a commodity at all. Thus we might agree to call the consumption of the United States for a year \$10,000,000,000, and this agreement would immediately fix a measure of value, though the new dollar need have no equality to the gold or silver dollar. It would be easy to translate between such an arbitrary standard and any commodity standard. Thus if statistics showed that the consumption measured in gold dollars was \$12,000,000,000, the agreed standard is at 120 compared with gold and by means of this factor we can reduce the prices of all commodities. In the mechanism the aggregate amount of liquid in the back cisterns corresponds to the \$10,000,000,000. If we take it so and if the amount of liquid in the I row is given at \$1,000, this means that (in whatever standard) the consumption of I is one-ten-millionth in value the aggregate consumption.

It is to be observed that the cisterns are free to move only *vertically*, the rods and rear cistern walls only *forward and backward*, the wooden floats can shift only sidewise *right and left* while the levers assume such positions as the mechanism compels.

§ 5.

Let given quantities of water be introduced into each front-and-back-row of front cisterns and into each right-and-left row of back cisterns. The system will attain a stable equilibrium and the level of water in each cistern will be that of the tank.

The front cisterns of a front-and-back row must have a uniform level on account of their mutual connection. The back cisterns of a right-and-left row must preserve a uniform level for a similar reason. The movable rear walls allow the pressure of the outside water in the tank to keep the back cisterns at the same level as the front. Without taking account of the levers the cisterns would thus all have the same level as the tank. But it would be possible to arrange their vertical positions and their rear thicknesses in many arbitrary ways. The levers simply specify or determine this arrangement.

§ 6.

It may be needful to restate carefully the magnitudes, their units and the conditions which determine them. The magnitudes are:

1. *The quantities of each commodity consumed by each individual during the year.* These are represented by the quantities of water in each front compartment.

2. *The given total quantities of each commodity consumed by the whole market*—represented by the fixed amount of water in each front and back row of front compartments and *registered on scales** *A, B, C*, at the rear of the tank. Each commodity-water may have a distinguishing color.

3. *The money paid for each commodity by each individual*—represented by the water in each back compartment.

4. *The total money income of each individual*—represented by the fixed amount of water in each right-and-left row of back compartments, and *registered on scales† I, II, III*, at the right of the tank.

* The stoppers A, B, C regulate this amount of water. The stoppers are each directly connected with the pointers on the scales A, B, C, and so arranged that when the stopper is withdrawn so that the scale reads zero, the water entirely disappears from the cisterns.

† The stoppers I, II, III are also directly connected with pointers on the scales I, II, III.

5. *The marginal utility of each commodity to each individual*—represented by the ordinate of each cistern, i. e. by the distance from its top to the water level.

6. *The money price of each commodity*—represented (in any cistern in the same front-and-back-row) by the thickness of the back compartment, and *registered on scales** p_a, p_b, p_c at the rear. (The relation of price to marginal utility will recur.)

7. *The prices of commodities in terms of each other*—represented by the ratios of their ordinates.

8. *The marginal utility of money to each individual*—represented (in any cistern in the same right-and-left-row) by the ratio† of the ordinate of that cistern to the thickness of its back compartment and *registered on scales*‡ $U I, U II, U III$ at the right.

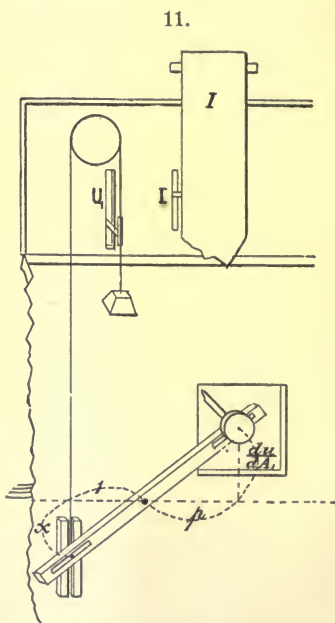
The units of these magnitudes are :

1. The unit of commodity is a *ton, yard, gallon, etc.*, and is represented by (say) a *cubic inch* of water.

2. The unit of money is (say) a *dollar* and is represented by (say) a *cubic inch* of water.

3. The unit of price is one dollar per ton, yard, gallon, etc., and is represented by one inch.

4. The unit of marginal utility for each individual is the marginal utility of (say) 100 tons of A. It may be called a *util* and by a proper



* The rods RRR are each connected by a cord and pulley with the pointers of the scales p_a, p_b, p_c .

† This ratio is evidently the marginal utility of money ("valuation of money") because as seen in chapter IV, § 2,

$$\frac{dU}{dA} = \frac{dU}{dm} \cdot p_a$$

whence : $\frac{dU}{dm} = \frac{\frac{dU}{dA}}{p_a} = \frac{\text{ordinate of cistern}}{\text{thickness of its back compartment}}.$

‡ Fig. 11 (which views the outside of the right wall of the tank) shows the device by which this is accomplished. Evidently from the labels

$$\frac{x}{1} = \frac{dA}{p_a} \text{ or } x = \frac{dU}{dm}.$$

The pointer obviously varies with x . It is so arranged as to register zero when $x = 0$.

adjustment of the breadth of each cistern may be represented by one *inch*. That is, if 100 cu. in. of water are put in each A cistern the ordinate must be one inch. This applies as well to the utility of money, so that the scale U at the left indicates the number of *utils* at which the individual values the last dollar of his income. It should, however, be noted that the variation of utils is only valuable in the same register, that is, for the same individual. There is no important meaning attached to the ratio of the scale readings U for two individuals. If that of I is 1 and of II 2 it means simply that II values his last dollar twice as much as his 100th ton of A, while I values his last dollar just as much as his 100th ton of A. It is interesting to observe that analogously the price registers are not to be compared, for while one indicates price per ton the other indicates price per yard, etc. Thus the mechanism is independent of any common measure of utility for different individuals and any common measure of prices for different commodities.

§ 7.

It will be observed that the numbers on the various registers are so connected that the product of the register of A by that of its price added to the like products for B, C, etc., will equal the sum of all the income registers.

Moreover if each cistern is provided with a graduation to show marginal utility, this number will be found to be the product of the number for price in its front-and-back row, by that for valuation of money in its right-and-left row.

§ 8.

The mechanism just described is the physical analogue of the ideal economic market. The elements which contribute to the determination of prices are represented each with its appropriate rôle and open to the scrutiny of the eye. We are thus enabled not only to obtain a clear and analytical *picture* of the interdependence of the many elements in the causation of prices, but also to employ the mechanism as an instrument of investigation and by it, study some complicated variations which could scarcely be successfully followed without its aid. Its chief uses may be briefly classified as follows :

1. Arrange the stoppers I, II, III, etc., so that the money incomes of I, II, III, are all equal. The differences of distribution of the commodities will depend on individual characteristics, that is, on

the character of the cisterns. If all the A cisterns are alike and also all B cisterns, all C cisterns, etc., then each commodity will be distributed in equal parts among the individuals.

2. Press stopper I. This amounts to increasing the income of I. It does not increase the amount of commodities in the market but gives a larger share to I. The total money value of the same aggregate commodities in the whole market has increased by the amount of liquid added by depressing the stopper.

The added water in the back cisterns of the I row will make the back compartments in this row fuller than the front. The back level will be temporarily above the water level of the tank and (as the cisterns will sink) the front level will be temporarily below. The effect of the former is to bulge out the movable rear wall in the I row, to extend the rods and to cause the same expansion in the back compartments of the II, III, etc. rows. This makes the back liquids in these rows lower and the front liquids higher than the tank level. Hence the front cisterns of the II, III, etc. rows pour part of their contents into the I row whose level as we have seen is below that of the tank.

In economic language to give a greater money value to one individual causes for him smaller marginal utilities (cisterns sink), a lower marginal utility of money, and increased consumption of commodities. For other individuals it increases marginal utilities (cisterns rise), decreases consumption, increases prices (back cisterns expand), and may increase or decrease their marginal utility of money-income according as marginal utilities (ordinates) increase faster than prices (back thicknesses) or the reverse.

So much for the effect on different individuals. Now as to the effect on the various commodities. Prices in general have risen but not necessarily of all articles. Suppose article C is consumed little or not at all (cistern narrow) by the enriched individual I but is extensively used by those whose valuation of money has increased. Then since the valuation of money to II is equal to the quotient of the ordinate of IIC divided by the thickness of the back cistern of IIC, and since this ordinate has not lengthened by any appreciable loss of commodity C from II to I, the thickness must have lessened, that is, the price has been reduced.

Not only may there be such exceptional commodities but there may be exceptional individuals. Thus a man may be the principal consumer of just those commodities and those only whose price has fallen. His consumption will increase, his marginal utility of money

decrease. He is benefited not injured by the increase of income of his neighbor I.

3. Press stopper I and raise III. I, II, III now represent a wealthy middle class and poor man respectively. We observe first that this change causes the poor man to relinquish entirely some things (luxuries) as C while decreasing his necessities slightly; second that the rich man increases his luxuries enormously and his necessities slightly, and thirdly that slight modifications will appear in the prices and hence in the middle-class consumption.

The nature of the effect on prices depends on the character of the cisterns of I and III, and on the magnitude of the changes in their incomes. In order that prices may not change, one condition (necessary but not sufficient) is that the amount of money income added to I must equal that taken from III, for if the amounts of commodities are not to change, nor their prices, their total values cannot. If all prices rise it proves a net increase of money income in the whole system.

If the increase of income of I equals the decrease of that of III, so that the total money value in the market is unchanged, and if furthermore all the cisterns of I and III have straight walls on the right and have their breadths* proportional, there will be no change in price. For if the cistern breadths of the III row are each, (say) half the corresponding ones in the I row, equilibrium will clearly be satisfied by shortening each ordinate of the I row by a uniform percentage (say 10%), and lengthening those of the III row by just twice the amount of shortening in the corresponding I ordinates. This will evidently cause the lengthening of the III ordinates to be uniform (say 15%). The ratio of marginal utilities has thus been preserved and hence the prices. Obviously the contents added to IA equals that taken from IIIA and equilibrium is reestablished by a simple transfer from III to I. In this case there is no effect on II or any individual save I and III.

* The breadth of a cistern is evidently the differential of its area divided by the differential of the ordinate that is the *fluxion of commodity in reference to its marginal utility*. It is a magnitude important in the discussion of distribution of commodities. Involving as it does the second differential of utility it has no perfectly distinct recognition in popular language. A narrow cistern means that a slight reduction of its contents causes its ordinate to increase much, i. e. causes it to be greatly desired. The individual is very *sensitive* to a change in that commodity. He misses a little less of it and appreciates a little more. Reversely a broad cistern signifies that it is hard to satisfy the man by increase and hard to annoy him by decrease. These two sorts of cisterns may be called "sensitive" and "callous" (see Appendix I).

More generally in a redistribution of incomes without altering their aggregate, in order that no prices may change (1) no condition is necessary for those whose incomes have not changed; (2) for those whose incomes have changed the geometrical character of the cisterns must be such that a proportional shortening of the ordinates for each and every richer man will absorb in the aggregate, the same additional commodity of each sort as is lost in the aggregate by the poorer through a proportional lengthening in the ordinates of each of them.

If the enriched man or men absorb more of a given commodity than this requirement its price will rise, if less it will fall.

If the increase of income of I equals the decrease of III effects on prices must be compensatory. If one rises some other or others must fall. If IA is much broader than IIIA but IB is much narrower than IIIB, the price of A may rise and of B fall unless counteractions come from other commodities. For if we were to suppose prices unaltered, the cistern IA would absorb from IIIA so much and IB from IIIB so little that the ordinate of IIIA would be too long and of IIIB too short for equilibrium. In order to partially permit this lengthening and shortening there must be a corresponding lengthening and shortening in the whole A and B rows respectively and prices must be proportioned to these ordinates. In this case it is to be noted furthermore that a change in prices causes a change in the distribution of the income of II and all other individuals.

The marginal utility of money for I decreases, for III increases, and for II may slightly rise or fall, owing to the change of prices. With the breadths of the cisterns properly adapted to the changes in prices there may be no change* in the valuation of money for II.

* If the prices of only two commodities A and B change and AII and BII are straight walled, and if their breadths are inversely proportional to the difference of the squares of the old and the new prices, there will be no change in the valuation of money. For, let p and p' be the old and new prices, let x_a and x_b be the breadths (for II) of the A and B cisterns and let y_a , y_b and y_a' , y_b' be their old and new ordinates. Since the marginal utility of money is not to change nor the prices of C, D, etc., their ordinates cannot and therefore their quantities (for II) cannot change. Hence the added expenditure (by II) on A must equal that taken from B, i. e. :

$$x_a y_a' p_a' - x_a y_a p_a = x_b y_b p_b - x_b y_b' p_b'.$$

But since the valuation of money is to be kept constant,

$$\frac{y_a'}{p_a'} = \frac{y_a}{p_a} = \frac{y_b}{p_b} = \frac{y_b'}{p_b'} = k.$$

If the price of A rises slightly and of B falls relatively more while the breadth of IIA is less than of IIB, the valuation of money to II will fall. For if not then the ordinates of IIA and IIB must change *pari passu* with the thickness of the back cisterns. The thickness and ordinate for IIA are, say each increased 10% and for IIB reduced 50%. There is clearly not room in IIA for all the money poured out of IIB. This surplus will spread over all A, B, C, etc., and reduce the ordinates and reduce the money valuation of II.

These artificially exact cases obviously stand for more general and approximate economic theorems. There are no such delicate adjustments in the actual world as here presented, but through ideal cases we study real tendencies.

4. Depress stopper A. The chief effect will be to lower the price of A. If it is a necessary* a relatively large share of the increase will go to the poor. It will probably occur that while the total money expenditure by the poor for this commodity will increase, that for the rich will *decrease*.† The marginal utility of money in general decreases especially for the poor man.

Most other commodities will rise in price if A decreases in price faster than it increases in quantity. For there will be a saving in the expenditure for A which must be made up elsewhere. But an exceptional commodity may fall in price. Thus if B happens to be extensively used (cisterns deep and broad) only by those who use A slightly, these persons will not save materially in the expenditure

Hence

$$x_a k p_a'^2 - x_a k p_a^2 = x_b k p_b^2 - x_b k p_b'^2.$$

Hence

$$x_a : x_b :: p_b^2 - p_b'^2 : p_a'^2 - p_a^2,$$

which is the condition required. More generally in order that the valuation of money to an individual shall not change, the cisterns of II must be so formed that when the money saved on some articles equals the extra spent on the others the ordinates may all change proportionally with the prices. If the ordinates increase more than this requirement or decrease less, the valuation of money will rise. In the reverse cases it will fall.

* A necessary may be defined as a commodity whose cistern is relatively deep and narrow. I. e. a very small quantity has a very great utility and a slight addition gives satisfaction very rapidly. A luxury has the reverse properties.

† When commodity *begins* to flow into a cistern its money value (the contents of the back cistern) increases in about the same rate as the commodity—it matters little how much the price (thickness) falls. Contrariwise when the cistern is nearly full a fall of price *decreases* the money value at about the same rate—the increase of commodity matters little. The dividing point is where the commodity increases at the same rate as the price decreases. These characters are more plainly shown in the diagrams of Auspitz und Lieben, p. 48, etc.

for A, but will be compelled to pour much money into C, D, etc. of which the prices have risen. This will cause a rise in their valuation of money and as the quantity of B does not decrease its price must.

Moreover there will be slight changes in all other quantities IB, IIC, etc. If (say) IIC decreases, it is due to one or both of two causes, a rise in price of C or a rise in valuation of money of II. In general the valuation of money will decrease. The decrease will be relatively great for the poor as compared with the rich, but (as just seen) will not necessarily decrease for all persons.

If A is a "luxury" the fall in its price will be small relatively to the foregoing case. Most of the increase of A will go to the rich. The total amount of money spent on it will probably *increase* which will in general decrease the price of other articles. Exceptions can be found analogous to that in the former case. The valuation of money will in general decrease, most perhaps for the middle class and more for the rich than the poor, but not necessarily for all.

5. The cases just discussed assume that the additional production of A is such that the incomes of I, II, III, etc. are not disturbed. To represent the case in which I *produces all* of A, after depressing A a given amount, slowly depress I until the *difference of income* as registered on the I scale shall equal the final reading on the A scale multiplied by the price of A *minus* the former A by its former price.

The chief change to any one article will be in the price of A which will decrease. The chief change to any one person will be to I whose income is increased (especially if the commodity is a luxury), whose expenditure for most other articles will increase though not necessarily for all, and whose valuation of money will decrease, owing both to an increase of income and to a decrease in price of other articles consequent on the withdrawal of money from them to be spent on A. Only exceptional articles will increase in price if their chief consumers sufficiently *decrease* their expenditure for A.

But it may be that the increase of A will so greatly depress the price that the value of the total will *decrease*. This is generally true of necessities. The producer I will lose income, that is stopper I must be raised instead of depressed. His valuation of money will increase doubly, owing to the contraction of his income and the rise in price of other articles. The money* return to such a benefactor

* Monopoly price is not treated here. It is interesting to note that the Dutch East India Co. used to destroy a part of their spices to prevent a great fall of price. The same thing has been done by the Japanese in silk-worm eggs.

is therefore not even roughly proportioned to his benefaction. If the exact shares among I, II, III, etc. in the old and new production of A are known, the proper combination of stopper-positions may be made and the reactions, now exceedingly complicated, may be watched.

6. Depress each stopper A, B, C, etc. There will be a general fall in prices. But it will not be true that if the quantity of each commodity is doubled its price will be halved, and the price of one commodity in terms of another unaltered as Mill* apparently thought, for the ratios of exchange are not the ratios of the contents of the cisterns but of their ordinates. Nor will the ratios of distribution of commodities remain the same. If however all cisterns in each front and back row are geometrically similar and their filled portions also similar (a most unreal condition), the ratios of distribution of commodities will be unaffected† and if furthermore all cisterns are similar, the ratios of prices will be unaltered.‡

In the actual world aside from differences in the shapes of cisterns there are more important differences in the way in which they are filled. Those for necessities are relatively full as compared with those for luxuries and those for the rich as compared with those for the poor. Hence the effect of a proportionate increase of production in all commodities will depress the price of necessities much more than of luxuries.

The effects on the valuation or marginal utility of money will be more complicated. If we suppose the depression of the stoppers to begin when they are far extended, the effects may be roughly described as follows. At first the valuation of money *increases* since the prices decrease faster§ than the marginal utilities, reaches a maximum (which is different for each individual and depends on the initial distribution), and *decreases* when the decrease of ordinates is faster than that of the thickness of the back cisterns. These

* Pol. Econ., Bk. III, Ch. XIV, § 2.

† For proportional increase of the contents of the cisterns in the same front and back row will reduce their ordinates proportionally and shrink the back compartments alike, thus restoring equilibrium.

‡ For in addition to the above consideration the reduction of ordinates in all rows will be alike.

§ Because when a cistern is relatively empty, a rise in the surface of its contents diminishes the long ordinate by only a slight percentage but very materially contracts the back compartment.

changes in the valuation of money are of course subject to the condition that each income measured in money remains the same.

7. Depress all income stoppers proportionally, i. e. increase all incomes in the same ratio. Then will all prices increase and the valuation of money decrease exactly in this ratio. There will be no change in the distribution of commodities. There is merely a depreciated standard of money. Formerly the whole marketed commodity was valued at a given number of dollars, now this number is increased.

We have seen under number 1, that an increase in the money income of a single individual without an increase in commodities is a benefit to him, but such an increase when universal is beneficial to no one.

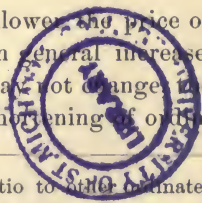
8. Remove cistern IA and replace it with a shallower one, i. e. suppose a change in the taste of I for A, making the article less attractive.

It is as if we raise the bottom of the original cistern IA. More of A will flow to other consumers and more of I's money will flow to the purchase of other commodities. A will fall in price, most other articles will rise. I's valuation of money will fall. For those who consume A extensively the valuation of money will fall. For others it may rise.

If all of the I cisterns grow shallower there will be a fall in the valuation of money for I, but either prices will not change or their changes must be compensatory, for the quantities of commodities have not been altered nor their aggregate value. If all of the I row cisterns change so as to admit of a uniform percentage shortening of ordinates without any commodity flowing out of any cistern, no commodity *will* flow out, no prices will change and there will be no change whatsoever in the distribution of commodities nor in the valuation of money to other people. If one cistern shortens more than this requirement, the effects will be analogous to those just described for a single cistern.

If all the cisterns of the A row are made shallower the price of A will decrease.* That of other articles will in general increase. In order that the distribution of commodities may not change the A cisterns must be so changed as to admit of a shortening of ordi-

* Otherwise while the A ordinates shorten and their ratio to other ordinates lessens, the back cisterns would have a relatively too great thickness compared with the other thicknesses.



The condition that the incomes are given is:

$$\left. \begin{array}{l} A_1 \cdot p_a + B_1 \cdot p_b + \dots + M_1 \cdot p_m = K_1 \\ A_2 \cdot p_a + B_2 \cdot p_b + \dots + M_2 \cdot p_m = K_2 \\ \dots \dots \dots \\ A_n \cdot p_a + B_n \cdot p_b + \dots + M_n \cdot p_m = K_n \end{array} \right\} \begin{array}{l} n \text{ equations.} \\ m \text{ new unknowns} \\ \text{(prices).} \end{array}$$

The utility functions (the cistern-forms) are:

$$\left. \begin{array}{l} \frac{dU}{dA_1} = F(A_1); \quad \frac{dU}{dB_1} = F(B_1); \quad \dots \quad \frac{dU}{dM_1} = F(M_1) \\ \frac{dU}{dA_2} = F(A_2); \quad \frac{dU}{dB_2} = F(B_2); \quad \dots \quad \frac{dU}{dM_2} = F(M_2) \\ \dots \dots \dots \\ \frac{dU}{dA_n} = F(A_n); \quad \frac{dU}{dB_n} = F(B_n); \quad \dots \quad \frac{dU}{dM_n} = F(M_n) \end{array} \right\} \begin{array}{l} mn \text{ equations.} \\ mn \text{ new} \\ \text{unknowns} \\ \text{(marg. ut.).} \end{array}$$

The principle of proportion is:

$$\left. \begin{array}{l} \frac{dU}{dA_1} : \frac{dU}{dB_1} : \frac{dU}{dC_1} : \dots : \frac{dU}{dM_1} = \\ \frac{dU}{dA_2} : \frac{dU}{dB_2} : \dots : \frac{dU}{dM_2} = \\ \dots \dots \dots = \\ \frac{dU}{dA_n} : \frac{dU}{dB_n} : \dots : \frac{dU}{dM_n} = p_a : p_b : p_c : \dots : p_m \end{array} \right\} \begin{array}{l} n(m-1) \\ \text{independent} \\ \text{equations.} \\ \text{no new} \\ \text{unknowns.} \end{array}$$

$$\begin{array}{lcl} \text{Total number of equations: } m+n+mn+n(m-1) & = & 2mn+m \\ \text{" " unknowns } mn+m+mn+0 & = & 2mn+m \end{array}$$

Therefore all magnitudes are determinate and the number of these magnitudes as well as the number of the equations is twice the number of commodities times the number of individuals plus the number of commodities.

The valuation of money for each individual can be found from the equations:

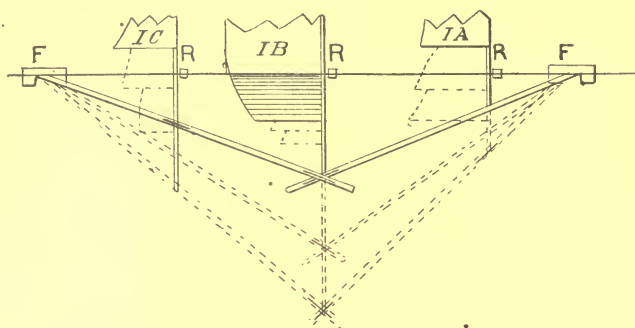
$$\frac{dU}{dm_1} = \frac{\frac{dU}{dA_1}}{p_a} \text{ (Ch. IV, § 2.)}$$

$$\frac{dU}{dm_2} = \text{etc.}$$

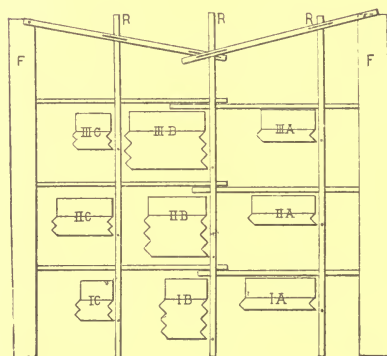
§ 11

For production the treatment is precisely parallel to the foregoing (figs. 12, 13).

12.



13.



CHAPTER V.

PRODUCTION AND CONSUMPTION COMBINED.

§ 1.

Hitherto it has been assumed that the quantities of commodities and incomes (or expenditures) have been *given*. But these quantities have themselves been determined by economic causes. Jevons* arranges the sequence as follows:

“Cost of production determines supply,
Supply determines final degree of utility,
Final degree of utility determines value.”

* Pol. Econ., Ch. IV, p. 165.

This represents the chronological order but only part of the causation. Cost of production is not the sole determinator of supply. Production is prophetic. When prices are steady the certain future price is an unquestionable regulator of supply. Auspitz und Lieben appear to me to deserve much credit for showing how all these facts harmonize. Price, production, and consumption are determined by *the equality of marginal utility and marginal cost of production*.* Their clear exposition of this theory not only exhibits the "fundamental symmetry of supply and demand," but reconciles in a captivating manner the old one-sided and seemingly contradictory theories of value making them fall in place as opposite facets of the same gem. It is discouraging to find the old fight still going on. Dietzel† attempts to play the peacemaker by the makeshift of dividing the field between the contesting theories.

The apparent conflict grows out of an inadequate conception of mathematical *determinateness*. As the quantity of any commodity increases its marginal utility to consumers decreases while its marginal disutility to producers increases. If the latter exceeds the former the price which consumers will give is less than what producers will accept. Production is contracted and the utility and disutility approach each other. If the quantity is too small the machinery acts in the reverse way. The equilibrium though always miscalculated is constantly sought and its more delicate and rapid deflections are corrected by a special functionary, the speculator.

§ 2.

It is assumed that the rate of production during the given period is exactly equal to the rate of consumption. This is asserting an ideal equilibrium.

The expenses of transportation and retailing are included in "production."

The principle of proportion previously explained is now extended. The marginal utilities of consuming and the marginal disutilities of producing are in the same continuous ratio for each individual—the ratio of prices.

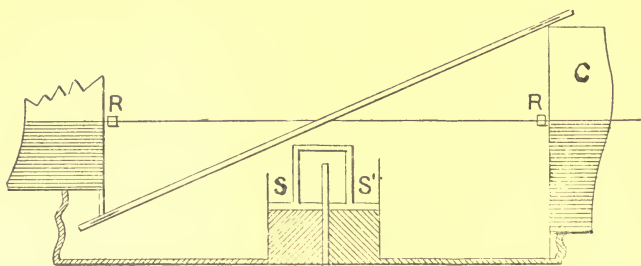
§ 3.

As the simplest case of combining production and consumption, suppose an individual to consume himself just that quantity of a given commodity which he produces.

* Auspitz und Lieben, § 5, p. 17.

† Die Klassische Werttheorie und die Theorie vom Grenznutzen. Conrad's Jahrbuch, 20.

14.



In Fig. 14 the stoppers* or pistons S and S' which regulate the quantities in the cisterns for production and consumption, respectively, are so connected as to move together, keeping the quantities in the two cisterns equal. Furthermore the water pressure on them from the tank keeps the level of all three liquids the same—that in the tank and those in the two cisterns. The lever keeps the marginal utility equal to the marginal disutility, for its pivot is a fixed one and is placed midway between the axes of ordinates. The resulting determinate equilibrium is subject to three sets of conditions :

- (1) The quantity consumed equals that produced—a condition provided for by the duplicate pistons.
- (2) There must be a relation between the quantity produced and its marginal disutility and between the quantity consumed and its marginal utility—the character of the cisterns.
- (3) Marginal utility and disutility are equal—the lever.

§ 4. ANALYTICAL.

If A_π and A_κ be the quantities of A produced and consumed, respectively, the conditions of equilibrium are :

$$\begin{aligned}
 A_\pi &= A_\kappa \quad \left. \begin{array}{l} 1 \text{ equation.} \\ 2 \text{ unknowns.} \end{array} \right\} \\
 \frac{dU}{dA_\pi} &= F(A_\pi) \quad \left. \begin{array}{l} 2 \text{ equations.} \\ 2 \text{ new unknowns.} \end{array} \right\} \\
 \frac{dU}{dA_\kappa} &= F(A_\kappa) \quad \left. \begin{array}{l} 2 \text{ equations.} \\ 2 \text{ new unknowns.} \end{array} \right\} \\
 \frac{dU}{dA_\pi} &= - \frac{dU}{dA_\kappa} \quad \left. \begin{array}{l} 1 \text{ equation.} \\ \text{no new unknown.} \end{array} \right\}
 \end{aligned}$$

No. equations : $1 + 2 + 1 = 4$.

No. unknowns : $2 + 2 + 0 = 4$.

* In practice a more intricate frictionless bellows would be used.

§ 5.

In the more general case there are n individuals and m commodities.

15.

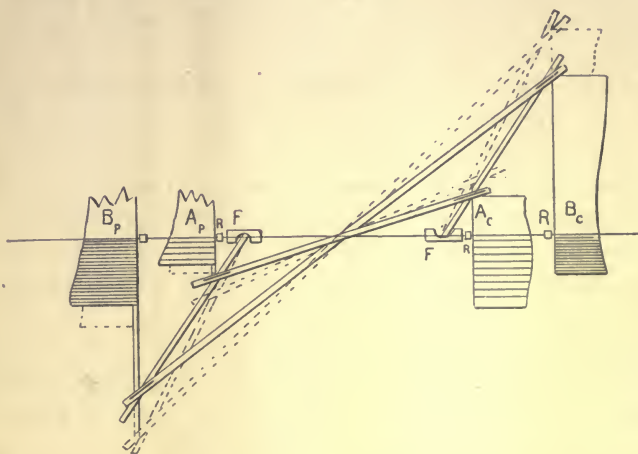
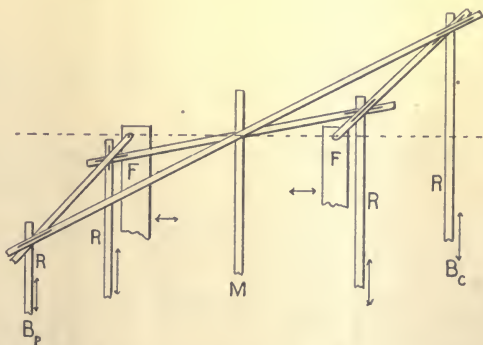


Fig. 15 simply connects fig. 9 and fig. 12 by a series of new levers like that in fig. 14, so that for each individual the ordinates of the production cistern and its consumption cistern shall be equal. There are also analogous horizontal levers (fig. 16) to keep the price for

16.



consumers equal to that for producers. The stoppers are all duplicate as in fig. 14 for each commodity. Moreover there are analogous duplicate pistons to keep each individual's incomes and expenditures equal.

The industrial machinery is now seen to be self-regulative. There is no arbitrary assignment of incomes or of commodities. The only

CHAPTER VI.

THE COMPONENT PROCESSES OF PRODUCTION.

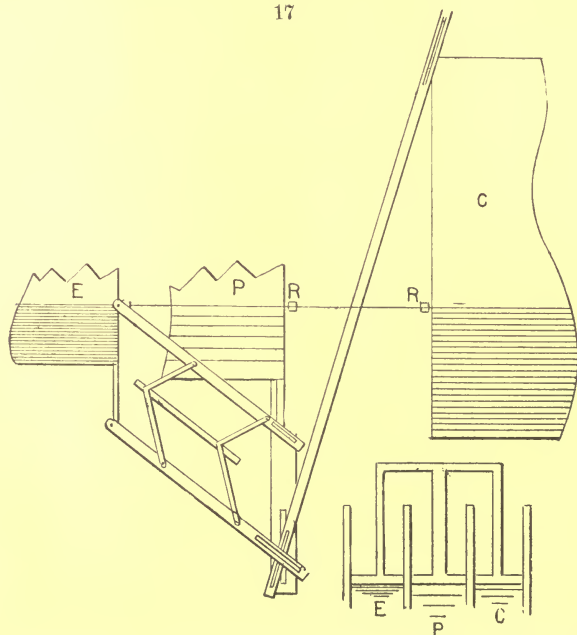
§ 1.

Without dwelling on the economic applications of the mechanism just described we hasten on to the description of a more complicated mechanism.

Production usually consists of a number of successive processes. The last of these is retailing. Let us group all other processes under the head of production. The price for production and consumption are no longer equal.

Hitherto we have had two sets of cisterns, the production set and the consumption set. Separate now, these sets far enough to introduce a third set for exchange or retailing as in fig. 17.

17



The exchange set is a series of double cisterns each related to a particular commodity, and a particular person. Consider the cistern IA_e for instance (the sub-letter for exchange or retailing). In the front compartment is the quantity of A which I buys and sells or transfers from producer to consumer. The back compartment contains the money pay for doing it.

These exchange cisterns are connected with each other and with the production set by levers precisely as if they were so many new commodities produced.

$$\left. \begin{array}{l} \frac{dU}{dA_{\pi,1}} \dots \frac{dU}{dM_{\pi,1}} : \frac{dU}{dA_{\epsilon,1}} \dots \frac{dU}{dM_{\epsilon,1}} : \frac{dU}{dA_{\kappa,1}} \dots \frac{dU}{dM_{\kappa,1}} = \\ \frac{dU}{dA_{\pi,2}} \dots \frac{dU}{dM_{\pi,2}} : \frac{dU}{dA_{\epsilon,2}} \dots \frac{dU}{dM_{\epsilon,2}} : \frac{dU}{dA_{\kappa,2}} \dots \frac{dU}{dM_{\kappa,2}} = \\ \dots \dots \dots \frac{dU}{dA_{\pi,n}} \dots \frac{dU}{dM_{\pi,n}} : \frac{dU}{dA_{\epsilon,n}} \dots \frac{dU}{dM_{\epsilon,n}} : \frac{dU}{dA_{\kappa,n}} \dots \frac{dU}{dM_{\kappa,n}} = \\ p_{a,\pi} \dots p_{m,\pi} : p_{a,\epsilon} \dots p_{m,\epsilon} : -p_{a,\kappa} \dots -p_{m,\kappa} \end{array} \right\} \begin{array}{l} n(3m-1) \\ \text{independent equa-} \\ \text{tions.} \\ \\ \text{no new} \\ \text{un-} \\ \text{knowns.} \end{array}$$

$$\left. \begin{array}{l} p_{a,\pi} + p_{a,\epsilon} = p_{a,\kappa} \\ \dots \dots \dots \\ p_{m,\pi} + p_{m,\epsilon} = p_{m,\kappa} \end{array} \right\} \begin{array}{l} m \text{ equations.} \\ \\ \text{no new unknowns.} \end{array}$$

No. equations: $2m + (n-1) + 3mn + n(3m-1) + m = 6mn + 3m - 1$.

No. unknowns: $3mn + 3m + 3mn + 0 + 0 = 6mn + 3m$.

The second set apparently contains n equations instead of $n-1$ as above recorded. But, by multiplication of the first line of the first set, we have :

$$\begin{aligned} (A_{\pi,1} + \dots + A_{\pi,n}) p_{a,\pi} &= (A_{\kappa,1} + \dots + A_{\kappa,n}) p_{a,\pi} \\ (A_{\epsilon,1} + \dots + A_{\epsilon,n}) p_{a,\epsilon} &= (A_{\kappa,1} + \dots + A_{\kappa,n}) p_{a,\epsilon} \end{aligned}$$

adding and remembering that $p_{a,\kappa} = p_{a,\pi} + p_{a,\epsilon}$ we get :

$$\begin{aligned} A_{\pi,1} \cdot p_{a,\pi} + \dots + A_{\pi,n} \cdot p_{a,\pi} + A_{\epsilon,1} \cdot p_{a,\epsilon} + \dots + A_{\epsilon,n} \cdot p_{a,\epsilon} = \\ A_{\kappa,1} \cdot p_{a,\kappa} + \dots + A_{\kappa,n} \cdot p_{a,\kappa} \end{aligned}$$

Writing the similar equations from the second, third, etc. lines of the first set and adding we get (rearranging terms):

$$\left. \begin{array}{l} A_{\pi,1} \cdot p_{a,\pi} + \dots + M_{\pi,1} \cdot p_{m,\pi} + A_{\epsilon,1} \cdot p_{a,\epsilon} + \dots + M_{\epsilon,1} \cdot p_{m,\epsilon} + \\ + A_{\pi,2} \cdot p_{a,\pi} + \dots + M_{\pi,2} \cdot p_{m,\pi} + \dots \dots \dots \\ \dots \dots \dots \\ + A_{\pi,n} \cdot p_{a,\pi} + \dots \dots \dots + M_{\epsilon,n} \cdot p_{m,\epsilon} \end{array} \right\} = \left\{ \begin{array}{l} A_{\kappa,1} \cdot p_{a,\kappa} + \dots + M_{\kappa,1} \cdot p_{m,\kappa} + \\ + A_{\kappa,2} \cdot p_{a,\kappa} + \dots \dots \dots \\ \dots \dots \dots \\ + A_{\kappa,n} \cdot p_{a,\kappa} + \dots \dots \dots + M_{\kappa,n} \cdot p_{m,\kappa} \end{array} \right.$$

If from this equation the sum of all but one of the second set be subtracted the result will evidently be the remaining one.

We are therefore at liberty to write

$$p_{a,\kappa} = 1$$

to determine a standard of value.

§ 3.

An analogous mechanism and discussion applies to the separation of production into retailing, wholesaling, transportation and even the various technical processes distinctive of the production of each commodity. In making worsted for instance there are some 16 processes having this sort of dependence.

The reactions and equilibrium in the real world are still more complicated than those here presented. Not only is there equilibrium in one market as New York city, but a mutual dependence of various markets. The rate of transportation determines in part the amount of dependence and the amount of communication determines in part the rate of transportation. As Cournot* says, “* * le système économique est un ensemble dont toutes les parties se tiennent et réagissent les unes sur les autres.”

End of Part I.

* Principes mathématiques, Ch. XI, p. 146.

Part II.—UTILITY OF ONE COMMODITY A FUNCTION OF THE
QUANTITIES OF ALL COMMODITIES.

CHAPTER I.

TWO COMMODITIES.

§ 1.

Hitherto it has been assumed that the utility of a commodity is a function of the quantity of that commodity alone. It is true that it depends upon that quantity more than any other and the analysis of Part I is a necessary first approximation. In astronomy the attraction of the sun on the earth is first studied alone to determine the earth's motion; next the moon's influence is admitted, then the occasional "perturbations" due to planets and comets. Absolute accuracy is never attained for the earth's motion is a function of the mass and position of every body in the universe.

So also the utility of the 100th lb. of butter (100 lbs. per year) depends mostly on that 100 lbs. It would not be perceptibly influenced by a change in the quantity of clothing, but it would be perceptibly reduced if the amount of *bread* consumed were reduced from 300 loaves to 200, for bread and butter go together.

It is needful here to distinguish carefully between two ways in which the quantity of one commodity can affect the utility of others. Even under the supposition of Part I, a change in the price of clothes effected a change in the individual valuation of money and so changed the quantity of bread consumed and so in turn changed the marginal utility and price of bread. But under our new supposition, a change in the price of butter directly changes the utility of the *same quantity* of bread. In the first case marginal utility of bread can change only after a change in its *quantity*. In the second the marginal utility of the *same* amount of bread changes; the first contemplates a variation in the quantity of water in a cistern, the second contemplates a variation in the cistern wall itself.

In Part I we assumed: $\frac{dU}{dA_1} = F(A_1)$; but now we must write:
 $\frac{dU}{dA_1} = F(A_1, B_1, C_1, \dots M_1).$

§ 2.

It will be seen that this sort of dependence of particular commodities is very common. Articles are bought with reference to each other, oil with reference to the number of lamps used, bed linen to the number of beds, bureaus to the quantity of clothes to be stored, carpets to the amount of floor rented or built, bookcases to the number of books owned; the demand for steel rails is connected with that for railroad ties, that for locomotives with that for cars, etc.

Again in production, the "peculiar cases of value" of which Mill* speaks and which Jevons† treats come under the same head; coke and coal gas; mutton and wool; beef, hides, and tallow, etc.

The cases above instanced are cases of "completing"‡ articles. Under the head of "competing"‡ articles, come, mineral oil and other oils, various "qualities" of any article as meats, grades of flour, etc., while under production almost every two articles are competing. A man in one business does not wish to meddle with another or, otherwise expressed, the marginal disutility of producing 1,000 tons per year of coal is increased if the producer attempts to run a paper mill or trade in jewelry.

§ 3.

Introducing this new dependence of utilities, it is seen that, if the cisterns contain at one point of equilibrium the proper amount of water and have as ordinates the proper marginal utilities, as soon as any income or commodity stopper is pressed, not only does the water redistribute but the shapes of the cisterns change. If the quantity of bread is increased, the cisterns for biscuit may shrink and those for butter widen. That is the ordinate (marginal utility) for the *same quantity* of biscuit decreases, and of butter increases. The general effect is to keep the ratio of marginal utilities of bread and biscuit and so also their prices nearly constant, while the cheapening of bread may directly increase the marginal utility and price of butter irrespective of its quantity.

§ 4.

The essential quality of substitutes or competing articles is that the marginal utilities or the prices of the quantities actually produced and consumed tend to maintain a constant ratio. We may

* Bk. III, Ch. XVI.

† Page 197.

‡ Auspitz und Lieben, p. 170.

define *perfect substitutes as such that this ratio is absolutely constant*. The essential attribute of completing articles is that the ratio of the *quantities* actually produced and consumed tends to be constant (as many shoe-strings as shoes for instance, irrespective of cost). We may define *perfect completing articles as such that this ratio is absolutely constant*.

If we suppose each set of competing and completing articles to be "perfect," it is possible to arrange the cisterns so that the change of form of some cisterns as due to change in the contents of other cisterns shall be small or nothing. Thus if four grades of flour be "perfect" competing, so that their marginal utilities are always in the ratio 8, 9, 11, 17, we may form a joint cistern for individual I whose contents shall be "flour," the quality unspecified. Each cubic unit of liquid shall represent equivalent quantities of each grade, i. e. $\frac{1}{8}$ barrel of the first quality, $\frac{1}{9}$ of the second, $\frac{1}{11}$ of the third or $\frac{1}{17}$ of the fourth, while the ordinate shall represent the *common utility* of any one of these equivalent quantities.

If four completing articles as the parts of a coat, sleeves, pockets, buttons, and coat proper are always produced and consumed in numbers proportional respectively to 2, 4, 3 and 1, we may form a joint cistern for individual I whose contents shall be "coats," parts undistinguished.

With such combinations as these, the cistern analysis of Part I will represent the economic relations fairly well and almost perfectly if the deviations from equilibrium are not followed too far.

But few articles are absolutely perfect representatives of either the competing or the completing group, and a member of one group may also belong to another. Thus butter is completing to bread and biscuit, and although a cheapening of bread directly increases the utility of butter it indirectly increases it by decreasing the use of biscuit.

It is readily seen that the interrelations of the shapes of the cisterns—if we now treat each quality of meat, etc. and each part of a utensil as a separate commodity—are too complicated even to be mentally representable without some new mode of analysis.

§ 5.

The former analysis is incomplete, not incorrect. All the interdependence described in Part I exists, but there also exist other connections between the shapes of the cisterns which could not be mechanically exhibited. For any one position of equilibrium the

cistern mechanism may represent accurately the quantities, utilities, and prices, but the shape of each cistern is a function of the whole state of equilibrium and differs as soon as that differs. However in general the interdependence in the shapes of the cisterns is very slight. That is, the utility of a commodity usually varies so much more under a variation in the quantity of that commodity than under variations of other commodities that the relations discussed in Part I may be regarded as good first approximations. Especially is this true if the interdependent commodities are grouped as in § 4, so as to eliminate all the really important influences of commodities on each other.* It will subsequently appear that the analysis of Part II is also incomplete and so will it ever be. Neither economics nor any other science can expect an exhaustive analysis.

§ 6.

Recurring to the definitions of utility as a quantity (Part I, Ch. 1), it will be noted that the third definition which indicated the ratio of two utilities was based on the assumption that the utility of each commodity was independent of the quantity of any other commodity. This assumption was necessary to prove that two applications of def. (3) led to harmonious results (Part I, Ch. I, § 4). To abandon this assumption as we have now done is to forego the use of that third definition. At the close of Part II a further discussion of "utility as a quantity" will be given. At present we content ourselves by assuming the marginal utility of a given amount of some one article as our unit of utility. Of course if we should use some other marginal utility as a unit, the measurements will not now agree. This, however, is no calamity. It will presently appear that the meaning of the phrase "one utility is twice another" is of no real importance for the subject in hand.

§ 7.

Confine attention first to two commodities (*a*) and (*b*) consumed by one individual. Let this individual first arrange his *whole* consumption combination to suit himself. Then in order to *partially* analyze this equilibrium of choice let us metaphorically experiment on him

* Marshall, Prin. Econ., Math. note xii, p. 756, says: "Prof. Edgeworth's plan of representing *U* and *V* as general functions of *x* and *y* [see preface to this memoir] has great attractions to the mathematician; but it seems less adapted to express the every day facts of economic life than of regarding, as Jevons did, the marginal utilities of apples as functions of *x* [the quantity of apples] simply."

as follows. He is directed to alter this consumption combination by arranging his quantities A and B of the two selected commodities (a) and (b) in all possible ways, but without changing the quantities C, D, etc. of other commodities. The marginal utility of each will vary not only in relation to its own quantity but also the quantity of the other commodity. Thus,

$$\frac{\partial U}{\partial A_1} = F(A_1, B_1)$$

$$\frac{\partial U}{\partial B_1} = F(B_1, A_1)$$

These may be regarded as derivatives with respect to A and B of

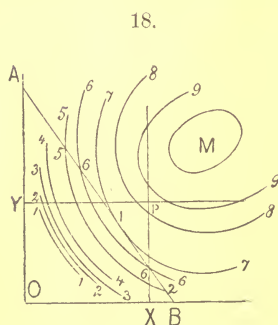
$$U_1 = \varphi(A_1, B_1)$$

where U_1 is the total utility to I of the consumption combination A_1 and B_1 .

In fig. 18 let the abscissa OX represent the quantities B_1 of (b) and the ordinates (OY) the quantities A_1 of (a). Any point P by its co-ordinates represents a possible combination of quantities A_1 and B_1 consumed by I. By varying point P all possible combinations of A_1 and B_1 are represented. At P erect a perpendicular to the plane of the page whose length shall represent the marginal utility of A_1 for the combination, that is, the degree of utility of a small addition of A_1 , (B_1 remaining the same). If P assumes all possible positions, the locus of the extremity of this perpendicular will be a surface.

Again at P erect a different perpendicular for the marginal utility of B_1 ; its extremity will generate another surface. The first surface takes the place of a utility curve for (a), the second for (b). These two surfaces may be regarded as the derivative surfaces (with respect to the variation of A_1 and of B_1), from a primitive whose ordinate (perpendicular at P), is the total utility of the combination of A_1 and B_1 represented by the point P. This surface is usually convex like a dome with a single maximum part, but it need not always be. There may be two maxima as will presently appear. In such a case it cannot be everywhere convex.

If a plane be drawn tangent to this last surface at a point over P, the slope of the plane parallel to the A direction will be the ordinate



of the first derived surface ; i. e., will be the marginal utility of A_1 , while the right and left slope will be the marginal utility of B_1 or the ordinate of the second derivative surface. The primitive surface thus supplies a convenient way of uniting in thought the two marginal utilities. Its absolute height* above the plane of the paper is of no consequence ; it may be lowered or heightened without disturbing tangential directions or affecting its two derivatives.

§ 8.

The three surfaces thus constructed need not extend indefinitely over the plane. They may approach vertical plane or cylindrical asymptotes so that for some points in the plane there may be no surface vertically over or under.

Mathematically the total utility and marginal utilities at these points are *imaginary*. Economically it is impossible that the individual should consume quantities of (a) and (b) indicated by the co-ordinates of such points.† Those parts of the plane where such points are may be called “empty.”

§ 9.

If (fig. 18) the point P moves vertically (up and down on the page) the extremity of the perpendicular for the total utility describes one of Auspitz und Lieben's curves for A_1 , it being understood however that the quantities of other commodities do not change.‡

The perpendicular for the marginal utility of A_1 generates in the first derivative surface a Jevonian§ curve of utility for A_1 it being understood that B_1 , C_1 , etc. are constant. *This curve will usually descend but it may not and cannot in certain regions if the surface is derived from a primitive with two maxima, or any concave primitive.* The other perpendicular, however, traces a curve which has never been used, viz : one which shows the relation between the quantities A_1 and the marginal utility of B_1 while B_1 remains constant. This curve will in general descend or ascend according as the articles (a) and (b) are competing or completing. For instance,

* It is in fact the arbitrary constant of integration.

† This “asymptote” and “imaginary” interpretation appears to cover the class of difficulties which led Marshall to say his curves failed to have meaning at points at which the individual could not live.

‡ It is rather, then, an “Elementarkurve” of a “Lebensgenusskurve” there being an “anfangsordinate.”

§ Jevons' curve is evidently the derivative of Auspitz und Lieben's. See table Appendix I, Division II, § 2.

suppose (a) and (b) are two brands of flour. If I consume during the period X units of one brand and 20 units of the other his desire for a 21st unit of the latter will depend on how much he has of the former (how large X is). If he has much of the first kind his desire is small.

A similar pair of curves may be found by moving P horizontally.

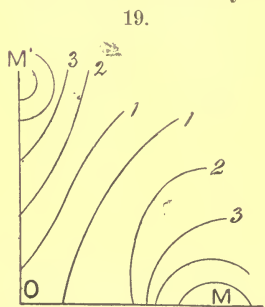
If the supposition in Part I were true the two strange curves (viz: connecting marginal utilities of A and B with quantities of B and A, respectively), would reduce to straight lines parallel to the plane of the paper.

§ 10.

The relations indicated by these three surfaces are really all included in one of them—the primitive. Consequently, to avoid troublesome transitions from one mode of representation to another we shall hereafter confine ourselves to this primitive surface.

Consider horizontal sections of this surface, that is sections parallel to the plane of the A and B axes. Each section forms a curve which may be called an *indifference curve*. It is the locus of points representing all consumption-combinations of A and B which have a given total utility. In fig. 18 the attached number to each curve represents the amount of this utility. They in general form a family of concentric curves vanishing finally at the point M of maximum satisfaction. M is the point at which the individual would arrange his consumption-combination of A and B if they cost nothing. There may be two or more maxima. For competing articles these maxima may lie in the axes (fig. 19), for one may prefer not to consume both.

The ordinates may of course have any units of length. Suppose this unit to be indefinitely reduced from an inch to a millimeter, etc. Then our surface becomes a layer. Its thickness may be figured as a *density* (rather than an ordinate), distributed over the plane of the paper as electricity over a conductor. Each indifference curve is the locus of points where the density (formerly ordinate), is a given amount. This idea of density will be henceforth used though the necessity for its use



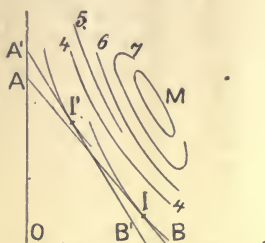
does not come till the next chapter.

Fig. 20 shows the curves for competing articles and fig. 22 for completing. For "perfect" substitutes the curves (fig. 21) reduce

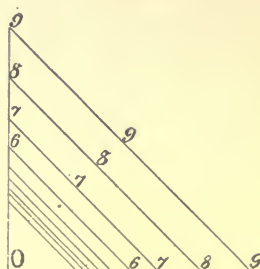
to parallel straight lines whose intercepts on the A and B axes are inversely proportional to the fixed ratio of their marginal utilities.

The point M is indeterminate on the line 99. "Lehigh" and

20.

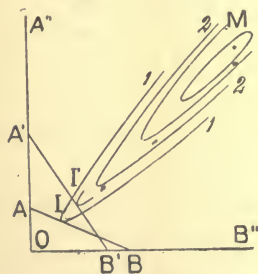


21.

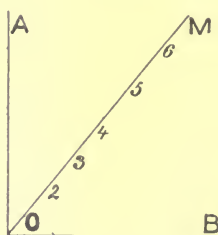


"Lackawanna" anthracite coal are nearly perfect substitutes. If it cost nothing the individual would indifferently consume the quan-

22.



23.



tity O9 (vertical) of one or O9 (horizontal) of the other or any combination of the two on the straight line 99 inclined in this case at 45° .

For perfect completing articles the whole family of curves reduces to a straight line passing through the origin (fig. 23). Let us regard a pair of shoes as two distinct commodities : right shoes and left shoes. For any point in the line OM (fig. 23), the desire for right shoes vanishes as long as no new left shoes are admitted, and yet the desire for a new pair may exist. The idea of marginal utility for right shoes has no application though that for pairs of shoes has.

§ 11.

There are endless points of view from which the primitive and its derivatives may be approached and made to yield the economic relations we seek.* Descriptions will be confined chiefly to the

* For instance we might take curves corresponding to the sections of the derivative surfaces at various heights, or curves orthogonal to the indifference curves (these will be again referred to), or curves representing the locus of points at which the marginal utilities of the two commodities have a given ratio.

indifference curves, the tangents and normals to which play an important rôle.

When our individual fixed his whole consumption combination to suit himself, let us suppose that he spent \$25 per year on the two articles (*a* and *b*) under consideration. We may metaphorically compel him, while not altering in the least his purchases of other articles and hence having the same \$25 to spend on (*a*) and (*b*), to contemplate spending it in a different way. If the price of (*a*) is \$0.25 and of (*b*) is \$0.50, the two simplest methods of spending his \$25 is to spend it all on (*a*) and purchase 100 units, or to spend all on (*b*) and purchase 50 units.

In fig. 18 lay off $OA = 100$ units and $OB = 50$ units. Then *any point on the straight line AB will represent a consumption combination of A and B purchasable for \$25.** AB may be called a *partial income line*. Our individual is therefore left free only to select his combination somewhere on this line. The combination 5 or 5 present equal inducements but not as great as 6 or 6 on an arc of greater utility, nor there as much as at I. He will select his combination in such a manner as to obtain the maximum total utility, which is evidently at the point I *where AB is tangent to an indifference curve.*† At this point "he gets the most for his money."

His selection I is of course just what it was before we began our analysis. But we have advanced one step. We have partially analyzed this equilibrium, that is we see the equilibrium for A and B while the prices and quantities of other articles remain the same. It is as if a pendulum free to swing in any vertical plane is found at rest and a scientist attempts to analyze its equilibrium. He forthwith confines its motion to a single plane and discusses its equilibrium there. The analogy suggested may be extended. The principle underlying the equilibrium of a pendulum or any mechanical equilibrium (as of a mill pond or of a suspension bridge) is: that configuration will be assumed which will minimize the potential. So also the supreme principle in economic equilibrium is: that arrangement will be assumed which will maximize utility‡.

* Proof: Equation of AB is $\frac{y}{OA} + \frac{x}{OB} = 1$ where *x* and *y* are the co-ordinates of any point on AB. This becomes $y \cdot \frac{25}{OA} + x \cdot \frac{25}{OB} = 25$; that is, *x* times its price + *y* times its price equals \$25.

† When AB is tangent to two indifference curves that one will be selected which has the greater utility.

‡ See interesting remarks, Edgeworth: *Mathematical Psychics*. Also in his address as Pres. section Econ. Sci. and Statistics Brit. Asso., *Nature*, Sept. 19, 1889, p. 496.

§ 12.

Since OA and OB represent quantities A and B of commodities (*a*) and (*b*) purchasable for the same sum (\$25), they are inversely proportional to the prices of (*a*) and (*b*).

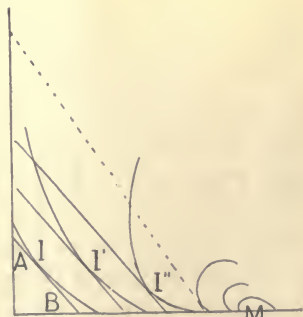
If prices remain the same but the individual grows richer and the sum he can afford to spend on (*a*) and (*b*) is no longer \$25 but \$50, the line AB simply recedes twice as far remaining parallel to itself. As it changes, its varying point of tangency follows a tortuous line the locus of all points at which the individual would arrange his combination of A and B at the given prices.

If the price of (*a*) increases, OA relatively diminishes and a new point of tangency is found. If the articles are completing (fig. 22) a change of price will not cause the tangent line to very greatly alter the proportion of consumption of the articles for it will merely change the position of I to (say) I', and it is clear that the coördinates of I' have nearly the same ratio as those of I; if substitutes (fig. 20) a slight relative change in price will cause an enormous change in the proportions used (I and I'). This was found to be the case in 1889 when a copper syndicate attempted to raise the price of copper. Hardly any article exists which has not some substitute. This sort of dependence keeps manufacturers watchful. It is because of this dependence that some "useful" articles go out of use.

§ 13.

Fig. 24 represents two "grades" of the same commodity, as brown and granulated sugar. The superior grade is laid off on the B (horizontal) axis, and the inferior on the A (vertical) axis. The point of maximum satisfaction is in or near the B axis. If the individual is poor and can afford to spend little on the article he will buy the poorer quality. The line AB is tangent to an indifference curve in or near the A axis at I. If he grows richer the line AB recedes from the origin and he purchases the combination I' containing considerably more of B; he uses this superior quality on Sundays (say) while consuming A on week days. If he grows richer still, he changes the position to I" using none of A or only a little.

24.



The inclination of the line AB is such that $OA > OB$ that is A is cheaper than B , for OA and OB are the quantities of A and B purchasable for the same money. If the prices of A and B were equal so that $OA = OB$, it would not be tangent to an indifference curve unless on the B axis and A would go out of use.

Moreover it is evident that a slight variation in the relative prices of A and B will change greatly the position of I for a poor man but will not change materially that of I'' for a rich man.

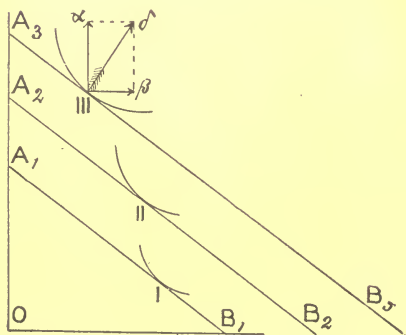
If the poor consumers predominate the line AB will follow the general trend of the curves near the origin. If the rich consumers predominate the line AB will become steeper (as in the dotted positions). That is the two prices of the two qualities separate widely.

This interprets the fact that in a rich market like New York City a slight difference in quality will make an enormous divergence in price while in some country towns different grades either do not exist or sell for nearly the same price. In the country districts of "the west" all cuts of beef sell for the same price (about 10 cts. per lb.). In the cities of the west two or three qualities are commonly distinguished, while in New York a grocer will enumerate over a dozen prices in the same beef varying from 10 to 25 cts. per lb.

§ 14.

In fig. 25 if the individual III attempts to change the position of

25.



III he may do so in many different "directions." If he changes in the direction III α , he will increase his consumption of A without altering that of B or if toward B , III β , without altering A , if in an intermediate direction, III δ , he will increase both A and B and in the ratios of the components of that direction (III α and III β). The direction of maximum increase of utility is perpendicular to the indifference curve.*

We may figure III δ as a *force*. If III were in any other position the force would evidently have a component along the line $A_3 B_3$ and would move III back to the position of equilibrium III.

* For between two infinitesimally distant indifference curves the shortest route is on their perpendicular.

We may call the perpendicular direction $\text{III } \delta$ the "maximum direction." It has the important property that its components $\text{III } \alpha$ and $\text{III } \beta$ are proportional to the marginal utilities of A and B. This follows from a theorem* of vector calculus or thus: $\text{III } \alpha$ and $\text{III } \beta$ are inversely proportional to OA_3 and OB_3 , that is directly proportional to the prices of A and B and therefore proportional to their marginal utilities.†

§ 15.

If (fig. 25) the separate curve systems of all individuals I, II, etc. are drawn, and the lines AB drawn in each case, they will be parallel. For the prices are uniform among all individuals and OA and OB in each case are inversely as the prices.

Since the normals to these lines will also be parallel, this theorem may be stated: *The "maximum directions" of all are alike.*

§ 16.

These methods apply to the comparison of any *two* commodities and afford a means of graphically representing statistical relations connecting the demands for two articles so far as the variations in the quantities of other articles can be eliminated.

The same principles apply to the production of two articles. Hides and tallow are completing articles from a producer's standpoint. Likewise coke and coal gas, mutton and wool, and in general any article and its "secondary product."

On the other hand most articles are competing or substitutes from a producer's point of view. The difficulty of producing cloth is greatly increased if the same individual produces books. This is the root of the principle of division of labor and leads to that important contrast between production and consumption once before alluded to. This and other contrasts will be mentioned in Appendix II, § 8. Marshall and others are fond of using the expression "fundamental symmetry of supply and demand." This notion must be supplemented by that of a "fundamental asymmetry." As social organization progresses each man (and each community or nation) tends to become producer of *fewer* things but consumer of *more*.

* Gibbs, Vector Analysis, §§ 50-53.

† For by similar triangles: $\frac{\text{III } \alpha}{\text{III } \beta} = \frac{\delta \beta}{\delta \alpha} = \frac{\text{OB}_3}{\text{OA}_3} = \frac{p_a}{p_b}$.

Fig. 26 shows the usual sort of indifference production curves. B is here laid off to the left and A downward; the line AB is the locus of production combinations of A and B which can be sold for the same money, say \$1,000. The point of tangency* I is the point at which the individual can produce the required \$1,000 worth of A and B with the minimum disutility. The curves are such that the points of tangency will be generally at or near the axes, especially if the amount of production is large i. e. if the line AB is far from the origin. If B becomes cheaper (OB longer) the point of tangency will change but slowly until presently there are two points of tangency and if B becomes still cheaper the individual will change his profession suddenly from the position I to a position in or near the A axis.

The numbers on the indifference curves for production increase indefinitely negatively. There is usually no maximum or minimum point.

§ 17.

Finally an article consumed may be competing or completing to another produced. A blacksmith finds small utility in dumb bells; the production of horseshoes "competes" with the consumption of dumb-bells.

The relations between competing articles and completing articles are not always so simple, for articles may be competing at some combinations and completing at others. Statistical inquiries along these lines might be made with profit, and have apparently attracted little attention.†

CHAPTER II.

THREE OR MORE COMMODITIES.

§ 1.

The foregoing methods extend very readily to three dimensions. Suppose the whole market to attain equilibrium. As before, let us as it were, freeze this equilibrium except for three commodities A, B, and C. Then as before, we obtain a fixed sum of money disposable

* The tangency must be such that the curve is on that side of the straight line toward the origin. The other kind of tangency represents an unstable equilibrium.

† See Jevons, p. 135.

for the purchase of A, B, and C, by each individual. Construct three mutually perpendicular axes (OA, OB, OC,) in space. Conceive this space to be filled with matter whose density distribution is the total utility for A, B, and C, relative to a particular individual I. There may be "empty" portions of space. The locus of points representing combinations of A, B, and C, possessing a given utility will be an indifference *surface*. All such loci will form a "family" of concentric surfaces like the coats of an onion around one or more points of maxima.

Lay off on the A axis OA,* equal to as many units of A as can be bought for the sum of money disposable by I for the purchase of A, B, and C. Lay off OB and OC similarly defined. Draw the plane A B C. This is the locus* of all consumption-combinations of A, B, and C, purchasable with the given sum of money. It is a "partial income plane." Its point of tangency with an indifference surface will mark the chosen combination. A *normal* at this point indicates the "maximum direction" and its A, B, and C components are the marginal utilities, proportional to the prices of A, B, and C.

§ 2.

The utility distributions may be very complicated. If the three articles are substitutes like oats, corn, and rye, the indifference surfaces may be almost plane and will allow but little change in the orientation of the partial income plane, while each slight change shifts the point of tangency greatly (cf. fig. 20 for two dimensions). If they are completing articles as cuffs, collars, and ties the indifference surfaces are arranged like concentric cocoons directed toward the origin (cf. fig. 22 for two dimensions).

But the three articles may be more intricately related in utility. Of tea, coffee and sugar, the first two are substitutes while the last is completing to both. If this triple completing and competing relation of articles were "perfect," the utility distribution would reduce to a plane passing through the origin and cutting between the "sugar" and "tea" axes, also between the "sugar" and "coffee" axes. Several characteristics of such an ideal utility dependence would exist. If the triple dependence is not "perfect" the plane referred to swells out into a flat disk or rather a "family" of concentric disks. The triple variation of prices and its effects on the

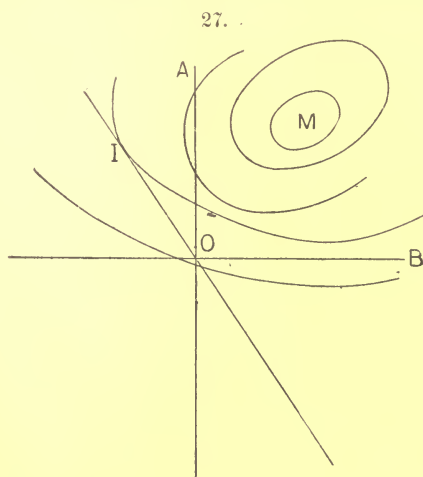
* For its equa. is $\frac{A}{OA} + \frac{B}{OB} + \frac{C}{OC} = 1$, whence: $A \cdot \frac{50}{OA} + B \cdot \frac{50}{OB} + C \cdot \frac{50}{OC} = 50$
or $Ap_a + Bp_b + Cp_c = 50$.

relative amounts of the three articles (that is on the position of the point of contact) can readily be discerned by its aid. Far more complicated cases are supposable and exist in reality.

§ 3.

If we suppose for an instant that there are but three commodities in the market, the preceding analysis yields a complete account of the equilibrium in that market.

To sketch this briefly let us suppose the space to be filled with a utility density for I, another superposed but different distribution for II, and so on. Let us include production. If one man should be both a consumer and producer of the same article, the *net* consumption or production is now to be taken, and the total utility or disutility of this net amount is the density. The planes before referred to as partial income planes may now be called "total income and expenditure planes," and they *must each pass through the origin**



(OI, fig. 27 for two dimensions). Since the "maximum directions" (normal to their planes) are parallel, these planes *must all coincide*. The point in this plane selected by I will be that of tangency to an indifference surface for I. Likewise for II, III, etc. Such points

* For since income balances expenditure, if A_1 , B_1 , C_1 , represent the (net) amounts consumed or produced by I, those consumed being treated as positive, and those produced as negative, the whole money value must be zero: i. e.

$$A \cdot p_a + B \cdot p_b + C \cdot p_c = 0,$$

which is the equation of a plane passing through the origin.

could be found whatever the position of the plane. But the plane must assume *such an orientation that the center of gravity of these points shall be the origin*. That is the algebraic sum of all the A coördinates consumed must equal the sum produced. Likewise the algebraic sum of the B and C coördinates must each be zero.

Hence with the geometrical analysis just described the equilibrium for a market of three commodities is determined when :

(1) All individuals' combinations lie in a common plane through the origin (each individual's sales and purchases cancel).

(2) Each individual's combination is at the point where this plane is tangent to an indifference surface for that individual (the point of maximum net utility).

(3) The points in the plane are so distributed as to make the origin their centre of gravity (the production and consumption of each commodity balance).

Whence it follows geometrically that the "maximum directions" are parallel, their components (marginal utilities) proportional as between different individuals and that this proportion is that of the orientation of the plane (the ratio of prices).

§ 4.

When this equilibrium is attained, let us, through the point of tangency I, representing the consumption combination for I, pass a section parallel to the plane of the A and B axes. The section of this plane with the total income plane gives a straight line which is none other than the partial income line of Ch. I, § 11 and its section with the indifference surfaces gives back the indifference curves of Ch. I, § 10.

§ 5.

We have temporarily assumed only three commodities for we have only three dimensions wherewith to represent them. A complete presentation of the interdependence of utilities would require m dimensions, for the utility of any one commodity A, is subject to m independent variations according to a change in any one of the m commodities, though (in general) the change of the quantity A itself is most important.

There is a curious glamour over "the fourth dimension." The popular interest is all to prove that it "exists." Its origin historically and its present usefulness is in the interpretation of a fourth independent variation, i. e. in representing just such relations as now

concern us. It seems unfortunate that only mathematicians should be acquainted with this fact.

§ 6.

In this m dimensional space make m mutually perpendicular axes for the commodities A, B, C, . . . M. Fill the space with a total utility density. Pass an $m-1$ flat* through the origin giving it the proper orientation in view of the prices. The indifference loci will be $(m-1)$ spaces (curved). The point of tangency of the $(m-1)$ flat with an $(m-1)$ indifference locus will indicate the *total* consumption and production combination for an individual. A normal to the $(m-1)$ flat and $(m-1)$ indifference locus at their tangency shows his "maximum direction" and its components the marginal utilities of all articles.

These ideas are not so unfamiliar as they appear. This space is simply the "economic world" in which we live. We often speak of spending an income in this or that "direction," to express the relative amounts of commodities. When one speaks of the "point" which a consumer or producer reaches, the use of the word is a natural attempt to group in thought m different magnitudes. This is accomplished by regarding them as coördinates of a "point" in the "economic world." It is an application to economics of those ideas of "multiple algebra" which have added† so to the beauty and simplicity of geometry and mathematical physics.

§ 7.

These conceptions will tend to a more compact comprehension of the nature of economic equilibrium. In order to have equilibrium in the whole system including production :

- (1) The utility distribution must be given for each individual.
- (2) The "maximum directions" must be alike among all individuals and between production and consumption.

(3) The origin must be the centre of gravity of all the individual points : that is the sum of all A coördinates for consumption must equal the sum for production and likewise for B, C, etc.

(4) The common income and expenditure flat must pass through the origin : that is the money values of each* man's production and consumption must cancel.

* I. e. a Euclidean space of $(m-1)$ dimensions related to the m -dimensional space as a plane is to our space.

† See J. W. Gibbs, Multiple Algebra, *Proceedings Amer. Asso. Adv. Sci.*, vol. xxxv.

§ 8.

By passing sections successively through the point I, we may narrow the discussion to as few variables as we choose. We may thus select any *three* and discuss them as before in real space (cf. § 4).

§ 9. ANALYTICAL.

For those familiar with multiple algebra, that is with the quaternion analysis of Hamilton, the "ausdehnungslehre" of Grassman, or the vector analysis of Prof. J. Willard Gibbs, the foregoing geometrical simplification will lead to a striking analytical simplification.*

Let I, II, . . . N, be vectors to the points I, II, . . . N from the origin. Let U_1, U_2 , etc., represent the total utility at the points I, II, etc. Let $\nabla U_1, \nabla U_2$, etc., be vectors to represent in magnitude and direction the maximum rate of increase of utility at the points I, II, etc. (i. e. in the "maximum directions").

The conditions of equilibrium expressed in § 7 become :

$$(1) \quad \nabla U_1 = F(I) ; \nabla U_2 = F(II) ; \dots \nabla U_n = F(N)$$

$$(2) \quad \nabla U_1 \propto \nabla U_2 \propto \nabla U_3 \propto \dots \propto \nabla U_n$$

$$(3) \quad I + II + III + \dots + N = 0$$

$$(4) \quad I \cdot \nabla U_1 = II \cdot \nabla U_2 = \dots = N \cdot \nabla U_n = 0$$

The first equation represents the several utility distributions. The second means that the "maximum directions" are alike ; the third that the amount of each commodity produced and consumed cancel, and the fourth that for each individual the values of production and consumption cancel.†

* See J. W. Gibbs' Vector Analysis, p. 16, § 50.

† The scalar equations which the preceding vector equations replace can readily be deduced from them. Let a, b, c , etc., be unit vectors along the A, B, C, etc. axes. Multiply $\nabla U_1 = F(I)$ by a, b, c , etc. respectively. We obtain m equations of the form $\nabla U_1 \cdot a = F(I) \cdot a$ or:

$$\frac{dU}{dA_1} = F(A_1, B_1, C_1, \dots M_1).$$

Likewise m scalar equations are contained in $\nabla U_2 = F(II)$, etc.

Again from (2) since $\nabla U_1 \propto \nabla U_2$,

$$\nabla U_1 \cdot a : \nabla U_1 \cdot b = \nabla U_2 \cdot a : \nabla U_2 \cdot b \text{ or:}$$

$$\frac{dU}{dA_1} : \frac{dU}{dB_1} = \frac{dU}{dA_2} : \frac{dU}{dB_2}.$$

Likewise for $C_1, D_1, \dots M_1$. Likewise for ∇U_3 , etc.

Again (3) yields $I \cdot a + II \cdot a + III \cdot a + \dots + N \cdot a = 0$ or

$$A_1 + A_2 + A_3 + \dots + A_n = 0.$$

Likewise for B, C, . . . M, making m equations.

§ 10.

It is seen that analytically the treatment of interdependent commodities differ from that of independent commodities only in this, that the equations which represent the functions have more letters ; i. e. we have

$$\frac{dU}{dA_1} = F(A_1, B_1 \dots N_1) \text{ instead of } = F(A_1).$$

All other equations are just as in Part I. In fact these function equations are, so to speak, the residuary formulæ ; they contain all the unanalyzed conditions of the problem.

The marginal utilities are (as in Part I) in a continuous ratio which is the ratio of prices. Yet there are some peculiar cases which could not occur under the suppositions of Part I, viz : those cases arising when the marginal utility of one or more articles has no meaning.

If two articles are perfect completing articles, as gun and trigger, there is no such quantity as the marginal utility of triggers alone. There is, however, a marginal utility of a combined gun and trigger. Now there are separate marginal disutilities for producing the gun and trigger. How are all these quantities to be introduced into our continuous proportion of marginal utilities ?

Suppose for a moment there were *no* difficulty of this sort. The proportion for each individual would be just as before (Part I, Ch. IV, § 10) and might be expressed as follows [G&g for gun T&t for trigger] :

$$-\frac{p_g}{\frac{dU}{dG_\pi}} = -\frac{p_t}{\frac{dU}{dT_\pi}} = \left[\frac{p_g}{\frac{*dU}{dG_\kappa}} \right] = \left[\frac{p_t}{\frac{*dU}{dT_\kappa}} \right] = \left[\frac{p_g + p_t}{\frac{*dU}{dG_\kappa} + \frac{*dU}{dT_\kappa}} \right] = \frac{p_g + p_t}{\frac{dU}{d(G \& T)_\kappa}}$$

Finally: It is clear that

$$I = Aa + Bb + \dots + Mm \text{ and } \nabla U_1 = \frac{dU}{dA_1} a + \frac{dU}{dB_1} b + \dots + \frac{dU}{dM_1} m.$$

Substituting these values in $I \cdot \nabla U_1 = 0$ we have after performing the multiplication and remembering that $a \cdot a = 1$ and $a \cdot b = a \cdot c = \dots = b \cdot c = \dots = 0$,

$$A_1 \frac{dU}{dA_1} + B_1 \frac{dU}{dB_1} + \dots + M_1 \frac{dU}{dM_1} = 0$$

or since prices are proportional to marginal utilities:

$$A_1 p_a + B_1 p_b + \dots + M_1 p_m = 0.$$

Likewise for II, III, etc. making n equations.

Conversely we could derive the vector equations from the scalar.

The last two members of this equation are new and require a word of explanation. The next to the last is an obvious consequence of the principles of composition and division. Its denominator represents the marginal utility of Gun and Trigger combined and is written $\frac{dU}{d(G\&T)_\kappa}$ in the last member.

But the quantities which are starred are those which can under our supposition no longer be said to exist. Hence all members of the equation containing a star drop out and we have left the first, second and last members. In other words, if two articles are perfectly completing their *joint* marginal utility is in the ratio to their *joint* price as the marginal disutility of producing either article is to its price (negatively) or as every other marginal utility is to its price.

In like manner if two articles are perfect completing articles from the producer's standpoint, as beef-hides and beef-meat, their joint marginal disutility is to their joint price as the marginal utility of either is to its price (negatively) or as any marginal utility is to its price.

If two articles are such that they are perfect completing both as to production and consumption and in the same ratios, they not only have no separate utilities or disutilities but they can have no separate prices. Thus, the head, limbs, tail and other parts of a horse are produced together and consumed (used) together; they have no separate price.

It is impossible for articles to exist which are perfect completing articles both for consumption and production but are produced in one ratio and consumed in another.

Suppose two articles are such that the production of one is perfectly completing to the consumption of the other. Suppose, for instance, that the production of a ton of iron involves the consumption of a ton of coal, and that the consumption of the ton of coal also implies the production of a ton of iron. The iron producer in this case could not be said to have utility for more coal so long as he does not produce more iron, nor can he be said to have disutility of producing more iron without consuming more coal. What utilities or disutilities then does he have? He may be said to have a joint marginal disutility of producing iron and consuming coal. This "joint" disutility is to the *difference* of the prices of iron and coal as the marginal utility of any commodity to him is to its price.

Like principles apply to three or more perfectly completing articles. As long as articles are not *perfectly* completing there is

no need for the substitution of joint utilities for single ones. As a matter of fact the number of really *perfectly* completing articles is relatively small.

If two articles are "perfect" substitutes for consumption and the ratio of their marginal utilities is the same for all consumers, while from a producer's standpoint they are not "perfect" substitutes, the consumers fix the ratio of their prices (viz: that of their marg. ut.) and the producers produce quantities accordingly. But the quantities of each consumed by different individuals is entirely indeterminate. Thus the milk from each cow may be regarded as a separate commodity. The consumer is indifferent to which milk he drinks, and purely accidental causes determine how much of each he gets; the producer, however, milks determinate amounts from each cow.

If two articles are perfect substitutes both for production and consumption and the ratio of their marginal utilities and of their marginal disutilities are all alike their prices will have this ratio, but the *relative* quantities of each produced and consumed is entirely indeterminate; (e. g. the colors in the binding of a book).

If two articles are perfect substitutes and the ratio of their marginal utility of the first to the second is for every consumer greater than the ratio of their marginal disutilities to all producers, the first commodity alone will be produced and consumed and its price will be determined as for any commodity.

In general if two articles are perfect substitutes, but the ratio of their marginal utilities and the ratio of their marginal disutilities is different for different individuals, those to whom the ratio of marginal utilities of the first to the second is greater than the ratio of their prices will consume only the first, those whose utility ratio is less than the price ratio will consume only the second, those whose disutility ratio is greater than the price ratio will produce only the second; those for whom it is less, only the first.* In this case the price of each article is determined just as usual, but for each individual who does not consume or produce one or the other, its marginal utility or disutility simply fails to have meaning and drops out of the equations; just as in Part I, occasionally a cistern may be entirely out of the tank water.

* If some producers and consumers should have their utility or disutility ratio identical with the price ratio the relative amounts produced and consumed are indeterminate to the extent of this coincidence.

CHAPTER III.

MECHANICAL ANALOGIES.

§ 1.

For each individual situated in the "economic world," suppose a vector drawn along each axis to indicate the marginal utility in that "direction." The marginal utility of consuming (*a*) is a vector positive along the A axis, the marginal disutility of producing (*a*) (or the disutility of paying money for *a*) is an *equal* vector in the opposite direction. In like manner the marginal utilities and disutilities along all axes are equal and opposite.

This corresponds to the mechanical equilibrium of a particle the condition of which is that the component forces along all perpendicular axes should be equal and opposite.

Moreover we may combine all the marginal utilities and obtain a vector whose direction signifies the direction in which an individual would most increase his utility. The disutility vector which indicates the direction in which an individual would most increase the disutility of producing. These two vectors are (by evident geometry) equal and opposite.

The above is completely analogous to the laws of composition and resolution of forces.

If marginal utilities and disutilities are thus in equilibrium "gain" must be a maximum. This is the mere application of the calculus and corresponds exactly to the physical application of the calculus which shows that at equilibrium the balancing of forces implies that energy is a maximum. Now energy is force times space, just as gain is marginal utility times commodity.

§ 2.

In Mechanics.

A particle

Space

Force

Work

Energy

corresponds to

" "

" "

" "

" "

In Economics.

An individual.

Commodity.

Marg. ut. or disutility.

Disutility.

Utility.

Work or Energy = force \times space.

Force is a vector (directed in space).

Forces are added by vector addition.

("parallelogram of forces.")

Work and Energy are scalars.

Disut. or Ut. = marg. ut. \times commod.

Marg. ut. is a vector (directed in com.)

Marg. ut. are added by vector addition.

(parallelogram of marg. ut.)

Disut. and ut. are scalars.

The <i>total work</i> done by a particle in moving from the origin to a given position is the integral of the <i>resisting forces</i> along all space axes (resisting forces are those directed toward the origin) multiplied by the distances moved along those axes.	The <i>total disutility</i> suffered by an individual in assuming a given position in the "economic world" is the integral of the <i>marg. disut.</i> along all commod. axes (marg. disut. are directed toward the origin) multiplied by the distances moved along those axes.
The " <i>total energy</i> " (the work done upon the particle) may be defined as the like integral with respect to <i>impelling forces</i> .	The <i>total utility</i> enjoyed by the individual is the like integral with respect to <i>marg. utilities</i> .
The <i>net energy</i> of the particle may be defined as the "total energy" less the "total work."	The net ut. or <i>gain</i> of the individual is the "total utility" less the "total disutility."
Equilibrium will be where net energy is maximum; or equilibrium will be where the impel. and resist. forces along each axis will be equal.	Equilibrium will be where gain is maximum; or equilibrium will be where the marg. ut. and marg. disut. along each axis will be equal.
(If "total energy" be subtracted from "total work" instead of vice versa the difference is " <i>potential</i> " and is minimum).	(If "total ut." be subtracted from "total disut." instead of vice versa the difference may be called " <i>loss</i> " and is minimum).

CHAPTER IV.

UTILITY AS A QUANTITY.

§ 1.

In Part I, Chap. I, Utility was defined with reference to a single individual. In order to study prices and distribution it is not necessary to give any meaning to the ratio of two men's utilities. Jevons apparently did not observe this. Auspitz und Lieben did. So did George Darwin.*

§ 2.

It would doubtless be of service in ethical investigations and possibly in certain economic problems to determine how to compare the utilities of two individuals. It is not incumbent on us to do this. When it is done the comparison will doubtless be by objective standards. If persons alike in most respects show to each other their sat-

* The Theory of Exchange Value. Fortnightly Review, new series, xvii, 243.

isfaction by similar gestures, language, facial expression, and general conduct we speak of their satisfaction as very much the same. What however this may mean in the "noumenal" world is a mystery. If on the other hand differences of age, sex, temperament, etc. enter, comparison becomes relatively difficult and inappropriate. Very little could be meant by comparing the desire of a Fuegian for a shell-fish with that of a college conchologist for the same object and surely nothing is meant by comparing the desires of the shellfish itself with that of either of its tormentors.

§ 3.

When statistics becomes a developed science it may be that the wealth of one age or country will be compared with that of another as "gain" not money value. If the annual commercial product of the U. S. was in 1880 \$9,000,000,000* and by increased facilities for production prices are lowered so much that the product in 1890 is only valued at (say) \$8,000,000,000 it proves a gain not a loss. The country would be the richest possible when all things were as plentiful as water, bore no price, and had a total valuation of *zero*. Now money value simply measures utility by a marginal standard which is constantly changing. Statistical comparison must always be rough but it can be better than that. The statistician might begin with those utilities in which men are most alike—food utilities—and those disutilities in which they are most alike—as the disutilities of definite sorts of manual labor. By these standards he could measure and correct the money standard† and if the utility curves for various classes of articles were constructed he could make rough statistics of total utility, total disutility, gain, and utility-value which would have considerable meaning. Men are much alike in their digestion and fatigue. If a food or a labor standard is established it can be easily applied to the utilities in regard to which men are unlike as of clothes, houses, furniture, books, works of art, etc.

§ 4.

These inquiries however do not belong here. Let us instead of adding to the meaning of utility do the very opposite and strip it of all attributes unessential to our purpose of determining objective prices

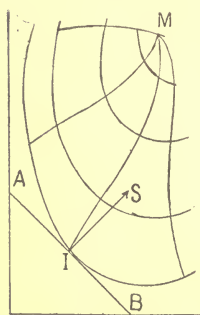
* Edward Atkinson, *Distribution of products*, p. 141.

† Cf. Edgeworth, *On the method of ascertaining and measuring variations in the value of the monetary standard*, Report of the British Association for the Advancement of Science, 1887.

and distribution. Definition 3, Part I, Chap. I, § 4 yielded uniform results only on the assumption that the utility of each commodity was independent of the quantity of others. Similar assumptions are necessary in geometry. A unit of length is a yard. A yard is the length of a standard bar in London. To be used it must be assumed that its length is not a function of its position nor dependent on the changes in length of other bodies. If the earth shrinks we can measure the shrinkage by the yard stick provided it has not also shrunk as a necessary feature of the earth's change. Definition 3 was essential in Part I to give meaning to the cisterns used. Such a definition is essential to the analyses of Gossen, Jevons, Launhardt, Marshall, and all writers who employ coördinates. Yet it is not necessary in the analysis of Part II.

§ 5.

In fig. 28 the "lines of force" are drawn perpendicular to the difference loci. The *directions* of these lines of force are alone used in the formulæ in Ch. II, § 9 which determine equilibrium. Therefore the *directions* alone are important. It makes absolutely no difference so far as the objective determination of prices and distribution is concerned what the length of the arrow is at one point compared with another. The ratios of the components at any point are important but these ratios are the same whatever the length of the arrow. Thus we may dispense with the total utility density and conceive the "economic world" to be filled merely with lines of force or "maximum directions."



merely with lines of force or "maximum directions."

§ 6.

Even if we should give exact meanings to the length of these arrows (so that the equation $\nabla U_1 = F(I)$ should signify not only that for each position in the economic world a definite "maximum direction" exists but also that the *rate* of increase of utility or the *length* of the vector along this line is given)—even then there would not be a complete primitive $U_1 = \varphi(I)$ unless certain conditions were fulfilled.* These conditions are (1) that the lines of force are so arranged that loci (*surfaces* in two dimensions, $m-1$ *spaces* in m dimensions) perpendicular to them can be constructed, and (2) that

* Osborne, *Differential Equations*, p. 12.

the rate of passing from one locus to the next along a line of force shall for all positions between the two loci be inversely proportional to the value of ∇U_1 already assigned to these positions. If ∇U_1 is not distributed in the above manner integration is impossible and *there is no such quantity as total utility or gain.*

§ 7.

Even if the integration were possible there would still be an arbitrary constant. We could even claim that total disutility exceeds total utility and all man can do is to minimize the disagreeable instead of maximize the agreeable. In other words, if we embrace hedonism, there is nothing in economic investigation to cause us to choose between optimism and pessimism.

§ 8.

Thus if we seek only the causation of the *objective facts of prices and commodity distribution* four attributes of utility as a quantity are entirely unessential, (1) that one man's utility can be compared to another's, (2) that for the same individual the marginal utilities at one consumption-combination can be compared with those at another, or at one time with another, (3) even if they could, total utility and gain might not be integratable, (4) even if they were, there would be no need of determining the constants of integration.

END OF PART II.

APPENDIX I.

MISCELLANEOUS REMARKS ON PART I.

I. FAILURE OF EQUATIONS.

Jevons (p. 118) discusses the failure of equations for simple exchange. It is clear that such failure must frequently occur in complex exchanges but no one has apparently commented on it. It would seem at first sight that this would introduce an indeterminate element into our results. Such however is not the case unless we take account of articles neither produced nor consumed; then the highest price which any consumer will pay for the first infinitesimal is less than the lowest price at which any one will produce it; there is no production nor consumption and the term price has no determinate meaning. As soon as changes in industrial conditions, that is in the shape of the cisterns or their number makes this inequality into an equality, the article enters into our calculations.

Suppose A is produced by n_π people, consumed by n_κ , and exchanged or retailed by n_ϵ , where n_π , n_κ and n_ϵ are each less than n (the number of individuals.) Moreover from the nature of our former suppositions if any of the three are greater than zero all must be, for anything once in the system is supposed to be produced, exchanged and consumed within the given period of time.

The number of people who do not

produce A is $n - n_\pi$,

exchange A is $n - n_\epsilon$,

consume A is $n - n_\kappa$.

The number of unknowns dropped out of the equations in Ch. VI, § 2, is

$3n - (n_\pi + n_\epsilon + n_\kappa)$ of the type $A_{1,\pi}$, $A_{1,\epsilon}$, $A_{1,\kappa}$, etc.,

and $3n - (n_\pi + n_\epsilon + n_\kappa)$ of the type $\frac{dU}{dA_1}$,

or $6n - 2(n_\pi + n_\epsilon + n_\kappa)$ altogether.

The failing equations in the first set are none,

"	"	"	"	second	"	none,
"	"	"	"	third	"	$3n - (n_\pi + n_\epsilon + n_\kappa)$,
"	"	"	"	fourth	"	$3n - (n_\pi + n_\epsilon + n_\kappa)$,
"	"	"	"	fifth	"	none,

or $6n - 2(n_\pi + n_\epsilon + n_\kappa)$ altogether.

From the above agreement it appears that there can be no indeterminate case under the suppositions which were first made. Let us look at this somewhat more closely.

In the fourth set of equations there are really $n(3m-1)\left(\frac{3m}{2}\right)$ separate equations but only $n(3m-1)$ are *independent*. Which shall be selected is a matter of convenience. We may make every equation contain $p_{a,\pi}$ for instance and write

$$p_{a,\pi} : p_{b,\pi} = \frac{dU}{dA_{\pi,1}} : \frac{dU}{dB_{\pi,1}} = \frac{dU}{dA_{\pi,2}} : \frac{dU}{dB_{\pi,2}} = \text{etc.}$$

$$p_{a,\pi} : p_{c,\pi} = \text{etc.}$$

$$\dots\dots\dots$$

$$p_{a,\pi} : p_{a,\kappa} = , \dots\dots\dots$$

$$\dots\dots\dots$$

$$p_{a,\pi} : p_{a,\epsilon} = , \dots\dots\dots$$

$$\dots\dots\dots$$

Now from the first two equations we may derive by division

$$p_{b,\pi} : p_{c,\pi} = \frac{dU}{dB_{\pi,1}} : \frac{dU}{dC_{\pi,1}},$$

but we might wish to use this last as one of the $n(3m-1)$ independent equations, if $A_{i,\pi}$ should "fail." From the $n(3m-1)\frac{3m}{2}$ separate equations we are at liberty to select for use any $n(3m-1)$ independent ones; and if in this selection there occur any which by some change of quantities fail, we are compelled to change our selection so that the new $n(3m-1)$ equations shall avoid the "failing" magnitudes.

This is interpreted in the mechanism as follows: when a cistern is wholly above the surface of the tank (as IIC fig. 8) and so contains nothing, the quantity of commodity and its utility "fail." The levers which keep the ordinates in proportion to the corresponding ordinates of other individuals may be far more numerous than the levers pictured in former diagrams. Thus for four cisterns there may be six levers (by joining each pair) but only three are necessary. The "failure" of any magnitudes will not invalidate any system of levers originally selected; it will simply make their number greater than necessary.

II. THE CISTERNs AND DIAGRAMS OF PART I COMPARED WITH THE DIAGRAMS OF JEVONS AND OF AUSPITZ UND LIEBEN.

§ 1.

In order to represent geometrically the relations between quantity of commodity, marginal utility, total utility, and gain (any two of which four magnitudes are determined by a specified relation between

the other two) it is only necessary to have a plane curve of appropriate form and to represent any two of the above economic magnitudes by any two geometrical magnitudes determined by the position of points in the curve.

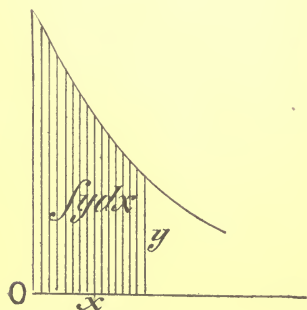
Out of the numerous possible methods thus included, the one selected for the preceding discussion was to represent marginal utility by the Cartesian ordinate and commodity by the area included between the curve, the axes of coördinates, and the abscissa drawn from the point.

§ 2.

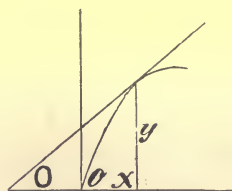
In order to show the connection between this system of coördinates and those of Jevons and of Auspitz und Lieben, the following scheme is presented :

	Jevons.	Auspitz & Lieben.	The new curves.
Commodity ----	$= x_j$	$= x_a$	$= \int x dy$
Marginal utility }	$---- = y_j$	$= \frac{dy_a}{dx_a} = \tan \theta$	$= y$
Total utility }	$----- = \int y_j dx_j$	$= y_a$	$= \int y x dy$
Gain -----	$= \int y_j dx_j - x_j y_j$	$= y_a - x_a \frac{dy_a}{dx_a}$	$= \int y x dy - y \int x dy$

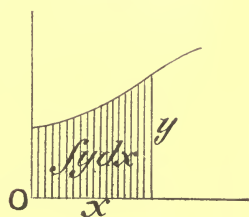
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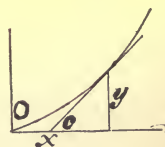
31.



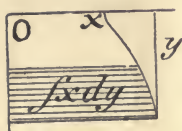
30.



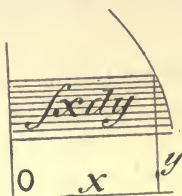
32.



33.



34.



These curves are shown in figs. 29 and 30 (Jevons), 31, 32 (Auspitz und Lieben), and 33, 34 (new). The first in each case is for consumption the second for production.*

§ 3.

If Jevons' curve for consumption* becomes a straight line, fig. 35, its equation is:†

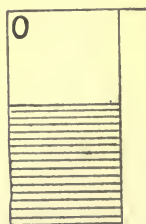
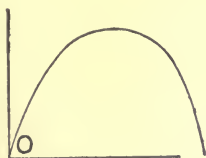
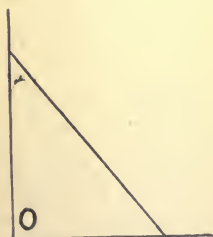
$$x_j + qy_j = m.$$

Using the preceding table substituting for x_j and y_j we get in Auspitz und Lieben coördinates :

35.

36.

37.



$$x_a - q \frac{dy_a}{dx_a} = m,$$

which integrated gives

$$2qy_a = 2mx_a - x_a^2 + C.$$

Since the curve must evidently pass through the origin, $C = 0$, and using new constants we may write :‡

$$y_a = \alpha x_a - \beta x_a^2,$$

which is a parabola (fig. 36).

* Jevons used no production curve. The one drawn is inserted to complete the comparison. Fleeming Jenkins' "Demand and Supply" curves are the same as Jevons save that price replaces marginal utility.

† Gossen, Launhardt, Whewell, and Tozer (the last two use no *geometric* analysis) employ such a linear supposition, though the meanings of their variables are not identical.

‡ Launhardt's equation.

For the new coördinates the substitutions from the table give :

$$f'xdy + qy = m,$$

which reduces to

$$x = -q,$$

a straight line parallel to the axis of ordinates (fig. 37).

The Auspitz und Lieben curve does not reveal to the eye the special supposition (that commodity and marginal utility change proportionally). If we suppose that marginal utility decreases at a constant rate in relation to constant *second* differences of commodity, the new diagram reduces to a straight line :

$$x - qy - m = 0,$$

while the other curves would be :

$$(y_a + Ax_a + B)^2 = C(D - x_a)^2$$

and

$$x_j = E - Fy_j - Gy_j^2.$$

§ 4.

The value of Jevons' diagram consists in the use of a simple and familiar system of coördinates (the Cartesian) as representing the two chief economic quantities, and is probably the best for elementary purposes.

The value of Auspitz und Lieben's diagram together with a "derivative" curve* not shown above consists chiefly in the ease with which maxima are discovered and the clear association of maxima with equality of marginal utilities. It is believed that the third method will, by means of its applicability to the mechanisms of Part I, more clearly reveal the *interdependence* of the many commodities of many individuals and of their many utilities.

§ 5.

The properties which are essential to the curve we have adopted are:—

First. That the curve shall never admit of being intersected twice by a horizontal line (i. e. that it shall not cease to run in a general up and down manner), *to express the fact for consumption that marginal utility decreases as quantity of commodity increases and for production that marginal disutility increases as the quantity of commodity increases.*

* Whose Cartesian coördinates are x_a and $y_a \frac{dy_a}{dx_a}$.

Second. That the curve shall approach the axis of ordinates asymptotically and in such a manner that the whole area between it and the axis is finite, to express the fact that marginal utility becomes infinitely minus for consumption of, and infinitely plus for production of finite limiting quantities of commodity.*

Third. The curves begin (have commodity equal to zero) at a finite vertical distance from the origin. (These assumptions are less generally true of production than of consumption, but they have been here employed throughout.)

§ 6.

It is evident that in comparing the forms of curves for different articles their differences and peculiarities are determined in a most delicate fashion by the form of the curve . . . far more delicately than, with our present statistical knowledge, is necessary.

Observe, then, what the *abscissa* of our curve stands for. An infinitely thin layer xdy is the amount *additional* demanded (or supplied) in response to an infinitesimal decrease (or increase) dy in marginal utility. The abscissa x is the ratio of the infinitesimal layer xdy to the infinitesimal change of price, dy . It is therefore *the rate of increase of quantity demanded*† (or supplied) in relation to change of marginal utility. AM (figs. 2 and 3) is the initial rate. Consulting II, § 2 of this appendix, we see that

$$x_j = \int x dy$$

Hence,

$$dx_j = x dy$$

But

$$y = y_j \text{ and } dy = dy_j$$

Hence

$$\frac{dx_j}{dy_j} = x.$$

That is the abscissa of our curve is the *tangential direction* in Jevons' curve, considered with respect to the axis of ordinates.

Hence if Jevons' curve be subjected to the condition of being convex, the new curve must have the simple condition that successive abscissas diminish, etc., etc.

§ 7.

Hitherto nothing has been said as to the mode of representing total utility and gain.

If y_1 is the marginal utility (which may be figured in money) at which a consumer actually ceases to buy, y_k that at which he would

* Cf. Auspitz und Lieben, pp. 7 and 11.

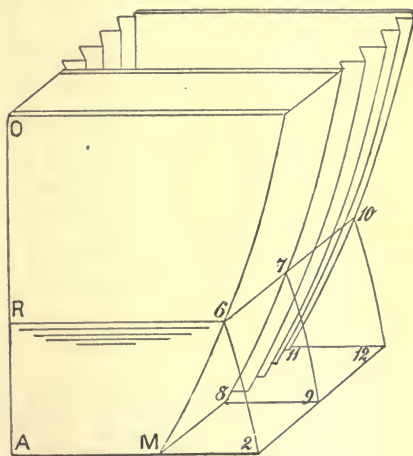
† Cf. foot note Ch. IV, § 8, div. 3.

ratio $O7/OR$ so that by getting it at less than he was willing to pay, he has gained the element 35 measured in corn. His gain is *maximum* when he purchases such a quantity that its final utility equals its price.

Fig. 39 applies to "producer's rent" or "gain," substituting "sale" for "purchase"; "sell" for "buy."

To express the gain *in money* the area $M26$ must be multiplied by the price. On each cistern construct the curve 62 (fig. 38) and consider the area $RA26$ to move front and back one unit (say one inch) so as to trace a volume (fig. 40) adjacent to the front cistern and

40.



again to move p inches further back so as to trace a volume adjacent to the back cistern.

The front volume gives again the total utility measured in commodity. The back volume gives the total utility *measured in money*. That is the whole back cistern and its adjacent volume represent the money which if the individual paid he would neither gain nor lose, provided his marginal valuation of it is unchanged by the operation. The cistern portion is the money he actually pays and the outside volume 7, 10, 12, 9, 8, 11 is his "gain." Likewise for the producer.

III. GAIN A MAXIMUM.

§ 1.

In the case of a single individual distributing a fixed income over various commodities under fixed prices the distribution actually

attained and specified in Part I yields the maximum total utility, for, since (Ch. IV, § 2):

$$\frac{dU}{dA_1} = \frac{dU}{dm_1} \cdot p_a; \frac{dU}{dB_1} = \frac{dU}{dm_1} \cdot p_b; \dots$$

therefore :

$$\frac{\frac{dU}{dA_1}}{p_a} = \frac{\frac{dU}{dB_1}}{p_b} = \dots = \frac{\frac{dU}{dM_1}}{p_m}. \quad (1)$$

The numerators are the marginal utilities per unit of commodity. To divide by the price is to make the unit of commodity the dollar's worth. Each fraction is thus the marginal utility per dollar's worth. The equation expresses the fact that the rate of increase of utility from spending more money on any one commodity equals the rate of increase for any other. Hence by a familiar theorem of the calculus the total utility must be the maximum attainable by any distribution of a fixed income. In like manner the individual distributes his production so that the marginal disutilities in all modes of producing dollar's worth of commodity are equal so that his total disutility is a minimum. Hence the difference between his total utility and total disutility or his economic gain is a maximum.

§ 2.

In the distribution of a single commodity over many individuals since :

$$\frac{dU}{dA_1} = \frac{dU}{dm_1} \cdot p_a; \frac{dU}{dA_2} = \frac{dU}{dm_2} \cdot p_a; \dots; \frac{dU}{dA_n} = \frac{dU}{dm_n} p_a,$$

therefore,

$$\frac{\frac{dU}{dA_1}}{\frac{dU}{dm_1}} = \frac{\frac{dU}{dA_2}}{\frac{dU}{dm_2}} = \dots = \frac{\frac{dU}{dA_n}}{\frac{dU}{dm_n}}, \quad (2)$$

that is, the marginal utilities (when the unit of utility is the marginal utility of money for each individual) are equal and the total utility is maximum. In like manner the total disutility is a minimum and gain therefore a maximum.

§ 3.

The first continuous equation may be divided by $\frac{dU}{dm_1}$ and the

second by p_a and since the first members will become identical we have a common continuous equation :

$$\frac{\frac{dU}{dA_1}}{\frac{dU}{dm_1} \cdot p_a} = \frac{\frac{dU}{dB_1}}{\frac{dU}{dm_1} \cdot p_b} = \dots = \frac{\frac{dU}{dA_2}}{\frac{dU}{dm_2} \cdot p_a} = \text{etc.} \quad (3)$$

that is, the marginal utilities of all commodities to all consumers are equal when the unit of utility is the marginal utility of money and the unit of commodity the dollar's worth. Hence the total utility in whole market thus measured is a maximum.*

§ 4.

However it may justly be objected that the marginal utility of money to one person is not equatable to that of another, that is that it is unfair to use the unit of utility for the poor man the high marginal utility of his small income and add the small number of such large units in a poor man's gain to the corresponding rich man's gain in which the unit of measure is small and the number of units large.

If we suppose by some mysterious knowledge an exact equivalence of utilities were possible between different individuals (see Part II, Ch. IV, § 2) and by some equally mysterious device of socialism we could *without changing the aggregate commodities* alter their distribution so as to make the whole market utility a maximum our condition would be

$$\frac{dU}{dA_1} = \frac{dU}{dA_2} = \text{etc.} \quad (4)$$

This could be brought about by a change in the relative incomes, taking from the rich and giving to the poor until

$$\frac{dU}{dm_1} = \frac{dU}{dm_2} = \text{etc.}$$

which applied to equation (3) will evidently afford the required (4), or by breaking down the condition of uniformity of price and making each man's price inversely as his marginal utility of money, which applied to (3) will evidently yield (4).

To interpret equation 4 in the mechanism we may alter the position of the stoppers in fig. 8 until the ordinates in each front and back row are equal. (This will not be when "incomes are equally divided" nor when "gains" are equal, for persons differ in their power of enjoyment, and it would still be true that those whose

* Cf. Auspitz und Lieben, p. 23 and 435.

capacities for pleasure were great would consume the most in order to make the aggregate gain in the whole market a maximum). Or we may destroy all the levers and re-arrange the rear thicknesses until the front and back ordinates are made equal.

In like manner the minimum disutility would be attained if all marginal disutilities were equal. The maximum gain would then result. This is the maximum gain obtainable *when the amounts of each commodity consumed and produced are fixed and given*. If we are permitted to rearrange these amounts also, we shall secure the maximum gain when the marginal utilities equal the marginal disutilities ; i. e.

$$\frac{dU}{dA_{1,\pi}} = \frac{dU}{dA_{1,\kappa}} = \frac{dU}{dA_{2,\pi}} = \text{etc.}$$

Under such a socialistic regime more "necessaries" and less "luxuries" would be consumed and produced than previously. The "rich" or powerful would produce more and consume less than previously ; the poor or weak would consume more and produce less. Yet for each the marginal utilities and disutilities would be equal.

It is needless to say that these considerations are no plea for socialism, but they serve to clear up a subject sometimes discussed by mathematical economists and reconcile Launhardt's contention* that utility is not a maximum with Auspitz und Lieben's that it is. The former unconsciously has reference to equation (4) which is not true, the latter to equation (3) which is.†

IV. ELIMINATION OF VARIABLES.

The four sets of equations, Part I, Ch. IV, § 10, can be reduced. We may substitute for $\frac{dU}{dA_1}$ its value $F(A_1)$ and thus eliminate all marginal utilities. Moreover we can get an expression for p_a, p_b , etc., in terms of commodities. First, if $m = n$ the second set of equations are easily solved‡ by determinants§ giving :

* Volkswirtschaftslehre under "Widerholte Tausch."

† Auspitz und Lieben appear to overlook this difference of standpoint. Preface, p. xxv.

‡ Burnside and Panton. Theory of Equations, p. 251.

§ This equation does not mean that any *arbitrary* values can be assigned to A_1, B_1 , etc., and the resulting price of A be so simply expressed ; only when A_1, B_1 , etc. satisfy *all* the conditions of Ch. IV, § 10 will the price be expressible as the quotient of the two determinants.

$$p_a = \left\{ \begin{matrix} K_1 & B_1 & \dots & M_1 \\ K_2 & B_2 & \dots & M_2 \\ \dots & \dots & \dots & \dots \\ K_n & B_n & \dots & M_n \end{matrix} \right\} \div \left\{ \begin{matrix} A_1 & B_1 & \dots & M_1 \\ A_2 & B_2 & \dots & M_2 \\ \dots & \dots & \dots & \dots \\ A_n & B_n & \dots & M_n \end{matrix} \right\}$$

in which obviously in general a change in A will produce a greater influence on p_a than an equal change in B, etc. But it shows clearly that p_a is not a function of A alone.

Usually $n > m$. Hence we may use the first m equations of the second set, or in fact any m equations. The resulting determinant-quotients must be equal and must equal also the several like determinates for production.

The corresponding values of p_b , p_c , etc., may be found and may be substituted in the fourth set.

If wherever A_1 now occurs in the fourth set, we substitute $K_a - A_2 - A_3 - \dots - A_n$ from the first set, and likewise for B_1 , etc., the resulting fourth set is self-sufficient. We have thus eliminated the variables $\frac{dU}{dA}$, etc., p_a , etc., A_1 , B_1 , etc., and have gotten rid of the first, second and third set of equations. We can proceed no further, however, until the explicit forms of the functions $F(A_1)$, etc., are given.

APPENDIX II.

LIMITATIONS OF THE PRECEDING ANALYSIS.

§ 1.

No pretense is made that the preceding analysis is perfect or exhaustive. There is no such analysis of any phenomena whatever even in physics. The suppositions in Ch. II, § 2 of Part I, are of course ideal. They only imperfectly apply to New York City or Chicago. Ideal suppositions are unavoidable in any science. In fact it is an evidence of progress when the distinction between the ideal and the actual arises.* Even in hydrostatics the assumption of perfect fluidity is never fully realized. The physicist has never fully explained a single fact in the universe. He approximates only. The economist cannot hope to do better. Some writers, especially those of the historical school are disposed to carp at the introduction of a refined mathematical analysis. It is the old story of the

* See Prof. Simon Newcomb. The Method and Province of Pol. Econ., N. Am. Rev., CCXI, IX.

“practical” man versus the scientist. A sea-captain can sail his vessel and laugh at the college professor in his elaborate explanation of the process. What to him is all this resolution of forces and velocities which takes no account of the varying gusts of wind, the drifting of the keel, the pitching and tossing, the suppositions which makes of the sail an ideal plane and overlook the effect of the wind on the hull? There is no need to point the moral. Until the economist is reconciled to a refined ideal analysis he cannot profess to be scientific. After an ideal statical analysis the scientist may go further and reintroduce one by one the considerations at first omitted. This is not the object at present in view. But it may be well to merely enumerate the chief of these limitations.

§ 2.

In Part I the utility of *A* was assumed to be a sole function of the quantity of *A*, and in Part II a function of all commodities consumed by a given individual. We could go on and treat it as a function of all commodities produced and consumed, treating not *net* production for each article, but the actual amounts separately produced and consumed by the given individual.

Again we could treat it as a function of the quantities of each commodity produced or consumed by *all persons* in the market. This becomes important when we consider a man in relation to the members of his family or consider articles of fashion as diamonds,* also when we account for that (never thoroughly studied) interdependence, the division of labor.

This limitation has many analogies in physics. The attraction of gravity is a function of the distance from the center of the earth. A more exact analysis makes it a function of the revolution of the earth, of the position and mass of the moon (theory of tides) and finally of the position, and mass of every heavenly body.

§ 3.

Articles are not always homogeneous or infinitely divisible. To introduce this limitation is to replace each equation involving marginal utilities by two inequalities and to admit an equilibrium *indeterminate* between limits.† As an extreme case we may imagine an article of which no one desires more than a single copy as of a book. The utility of (say) Mill’s *Pol. Econ.* is considerably greater than

* See David Wells, *Recent Economic Changes*, on Diamonds.

† Auspitz und Lieben, 117–136 and 467.

its cost, but the utility of a second copy is considerably less than its cost. In the aggregate market, however, there will be a *marginal person* whose utility is very close to the price. A change in price will not alter the amount purchased by everyone, but will alter the *number* of purchasers.*

§ 4.

Producing, consuming and exchanging are discontinuous in time. The theory of utility when applied to a *single act* of production or consumption or of sale or purchase, is independent of time, or rather the time element is all accounted for in the form of the utility function.† But an analysis of a number of such acts must take account of their frequency. The manner in which the time element enters has puzzled not a few economists.

An example from physics may not be amiss. In the kinetic theory of gases the pressure on the walls of the containing vessel is explained by its continual bombardment by molecules. But an apparent difficulty must be observed. A rebound of a molecule involves the idea of *momentum* only while that which we wish to explain is *pressure* or *force* which is not by any means momentum, but momentum divided by *time*. How does this time enter? By regarding not one but many molecules and taking account of the *frequency* of their collision. The average momentum of each blow divided by the average interval between the blows is the pressure sought.

So a produce exchange is a channel connecting production and consumption. Instead of an even flow of one bushel per second, the machinery of the exchange is such that by an instantaneous blow of a bat, so to speak, a thousand bushes are knocked along. Time is inappropriate to explain the single blow but necessary to explain the many.

§ 5.

The ideal statical condition assumed in our analysis is never satisfied in fact.

No commodity has a constant yearly rate of production or consumption. Industrial methods do not remain stationary. Tastes and fashions change. Panics show a lack of equilibrium. Their explanation belongs to the dynamics of economics. But we have

* The analysis of H. Cunyngame in the Ec. Jour., March '92, applies to this case.

† Cf. Jevons, 63-68.

again a physical analogue. Water seeks its level, but this law does not fully explain Niagara. A great deal of special data are here necessary and the physicist is as unfit to advise the captain of the Maid of the Mist as an economist to direct a Wall street speculator. The failure to separate statics from dynamics appears historically* to explain the great confusion in early physical ideas. To make this separation required the reluctant transition from the actual world to the ideal. The actual world both physical and economic has no equilibrium. "Normal"† price, production and consumption are sufficiently intricate without the complication of changes in social structure. Some economists object to the notion of "normal" as an ideal but unattainable state. They might with equal reason object to the ideal and unattainable equilibrium of the sea.

The dynamical side of economics has never yet received systematic treatment. When it has, it will reconcile much of the present apparent contradiction, e. g. if a market is out of equilibrium, things may sell for "more than they are worth," as every practical man knows, that is the proper ratios of marginal utilities and prices are not preserved.

§ 6.

We have assumed a constant population. But population does change and with it all utility functions change. An analysis whose independent variable is population‡ leads to another department of economics. In the foregoing investigation the influence of population was included in the *form* of the utility function. So also with all causes physical, mental and social not dependent on the quantities of commodities or services.

§ 7.

Individuals are not free to stop consuming or producing at any point. Factory operatives must have uniform working hours. The marginal undesirability of the last hour may for some workmen equal, for others exceed or fall short of the utility of its wages.

§ 8.

No one is fully acquainted with all prices nor can he adjust his actions to them with the nicety supposed; both these considerations are starting points for separate discussion.

* Whewell, *Hist. Induct. Sci.*, I, 72-3 and 186.

† Marshall, p. 84.

‡ See article of Prof. J. B. Clark. *Distribution as determined by a law of rent.* *Quart. Jour. Econ.*, Apr. '91, p. 289.

§ 9.

The "fundamental symmetry of supply and demand worked out by Auspitz und Lieben should not bind us to the fundamental *asymmetry*. The symmetry enables us to investigate the general dependence of consumption and production but special investigation of production, e. g. of railroad rates should be independently pursued.

- (1.) Production of a commodity always precedes its consumption.
- (2.) The maximum advantage in *production* involves few commodities for each individual, in *consumption* many.
- (3.) Increasing social organization intensifies the former fact not the latter.
- (4.) There are more successive steps in production than consumption.
- (5.) Social organization intensifies this distinction.
- (6.) Owing to (4) and (5) *service* rather than *commodity* becomes increasingly the unit in production.
- (7.) Freedom to leave off consuming at any point is greater than for producing.
- (8.) Social organization intensifies this.
- (9.) Combination and monopoly are more feasible and frequent in production than in consumption.
- (10.) In production the distinction of fixed charges and running expenses often plays an important rôle. This deserves a separate treatment. The transportation charges on a steamship are not what it costs to transport an extra ton but it is this quantity plus the proportionate share of that ton in the fixed charges (interest, insurance, etc). That is, the marginal cost of service involves the margin of capital invested as well as the marginal cost of running the ship) (which is purely nominal). This is so in theory of railroad rates but the railroad investor cannot foresee the results of his enterprise as well nor can he change his road when built from one route to another as a steamship can do. To apply the theory to railroads assumes that railroad projectors know what the traffic will be. Consequently the proper discussion of railroad rates, *assuming that the railroads are already built*, takes no account of fixed charges but becomes formulated as "what the traffic will bear."*

A complete theory of the relation of cost of production to price in its varying and peculiar ramifications is too vast a subject to be treated here.

* See Hadley, Railroad Transportation.

§ 10.

It has been assumed throughout this investigation that marginal utility decreases as quantity of commodity increases. This is not always true, e. g. it is obviously not true of intoxicating liquors. A study of the liquor traffic would require a somewhat different treatment from that of most other commodities. Still less is it always true that marginal cost of production always increases as the quantity produced increases. It is clearly not true that it costs more in a shoe factory to produce the second shoe than it costs to produce the first. Yet it is probably quite generally true that at the actual margin reached in business the disutility of extending the business grows greater. When this is not true and when it is not true that marginal utility decreases as quantity of commodity increases an instability is the result. The matter of instability is one element at the bottom of the present industrial tendency toward trusts and pools.

§ 11.

There is no isolated market. Not only this but a "market" itself is an ideal thing. The stalls in the same city meat market may be far enough apart to prevent a purchaser from behaving precisely as if he stood before two counters at once. The relation of the counters ten feet apart differs in degree rather than in kind from the relation of London to New York.

APPENDIX III.

THE UTILITY AND HISTORY OF MATHEMATICAL METHOD
IN ECONOMICS.

§ 1.

Mathematics possesses the same *kind* though not the same degree of value in every inquiry. Prof. B. Peirce,* in his memorable *Linear Associative Algebra*, says: "Mathematics is the science which draws necessary conclusions. * * * * * Mathematics is not the discoverer of laws, for it is not induction, neither is it the framer of theories for it is not hypothesis, but it is the judge over both. * * * * * It deduces from a law all its consequences.

Mathematics under this definition belongs to every inquiry, moral as well as physical. Even the rules of logic by which it is rigidly bound could not be deduced without its aid. The laws of argu-

* Amer. Jour. Math., IV., p. 97.

ments admit of simple statement, but they must be curiously transposed before they can be applied to the living speech and verified by observation.

In its pure and simple form the syllogism cannot be directly compared with all experience, or it would not have required an Aristotle to discover it. It must be transmuted into all the possible shapes in which reasoning loves to clothe itself. The transmutation is the mathematical process in the establishment of the law.*

I make this quotation for I believe many persons, especially economists, do not understand the character of mathematics in general. They imagine that a physicist can sit in his study and with the calculus as a talisman spin out some law of physics. Some economists have hoped for a similar mysterious use of mathematics in their own science.

§ 2.

We must distinguish carefully between what may be designated as *mathematics* and *mathematical method*. The former belongs, as Prof. Peirce says, to every science. In this sense economics has always been mathematical. The latter has reference to the use of *symbols and their operations*. It is this which is to be discussed here. A symbol may be a letter, a diagram, or a model. All three are used in geometry and physics.†

By an *operation* on symbols is meant a rule the formulation of which depends on the mention of those symbols (as the operation of differentiation). To employ mathematical method is to pass from what is given to what is required by the aid of such a rule. To avoid mathematical method is to do it without the rule. Symbols and their operations are aids to the human memory and imagination.

§ 3.

The utility of mathematical method is purely relative, as is all utility. It helps greatly some persons, slightly others, is even a hindrance to some.

Before a schoolboy studies "mechanics" he is usually given in his arithmetic problems of uniform motion. It would sorely puzzle him if he were compelled to use the formula $s=ut$. The employment of symbols has for him only *disutility*. But when in

* Cf. Grassmann, *Ausdehnungslehre*, Introduction.

† Few are aware how important models sometimes are in the treatment of these sciences. Maxwell's model to represent the relations of volume, entropy and energy in thermodynamics is an excellent example.

"mechanics" proper a few years later the same boy studies "falling bodies" he finds it helpful to use the formula $v = gt$ which contrasts with the preceding formula only in that space (s) is replaced by space per unit of time (v) and velocity (u) by velocity acquired per unit of time (g). The increased complexity of the magnitudes makes a formula relatively desirable. Yet for some minds the latter formula is of no use. Experience in teaching this very subject has convinced me that there are a few who understand it better without the aid of the formula, but they are just those individuals whose comprehension of the relations involved is the vaguest and the weakest.

The formulæ, diagrams and models are the instruments of higher study. The trained mathematician uses them to clarify and extend his previous unsymbolic knowledge. When he reviews the mathematics of his childhood, the elementary mechanics is to him illumined by the conceptions and notation of the calculus and quaternions. To think of velocity, acceleration, force, as fluxions is not to abandon but to supplement the old notions and to think of momentum, work, energy, as integrals is greatly to extend them. Yet he is well aware or ought to be that to load all this on the beginner is to impede his progress and produce disgust. So also the beginner in economics might be mystified, while the advanced student is enlightened by the mathematical method.

§ 4.

The utility of a mathematical treatment varies then according to the characteristics of the user, according to the degree of his mathematical development and according to the intricacy of the subject handled. There is a higher economics just as there is a higher physics, to both of which a mathematical treatment is appropriate. It is said that mathematics has given no new theorems to economics. This is true and untrue according to the elasticity of our terms. The challenge of Cairnes might be answered by a counter challenge to show the contents of Cournot, Walras, or Auspitz und Lieben in any non-mathematical writer.

If I may venture a speculation, those who frown on the mathematical economist because he "wraps up his mysterious conclusions in symbols" seem to me in some cases to point their finger at those "conclusions" which when "unwrapped" of symbols they recognize as old friends and lustily complain that they are not new; at the same time they seem to ignore completely those "mysterious" conclu-

sions which *are* new because they think the former and admitted theorems exhaust all that is important on the subject. Why should the mathematician be obliged to vindicate the exercise of his science by overturning economics or by deducing some "laws" more fundamental than those already admitted?

Elementary physics is the fundamental physics and it can be taught with little or no mathematical symbols. Advanced physics is relatively less popular while more mathematical. By actual count Ganot's elementary physics of 986 pages contains a formula for every three and one-third pages. The chapter on electricity and magnetism of 320 pages, a formula for every $4\frac{1}{2}$ pages, while the profound treatise of Mascart and Joubert on Electricity and Magnetism, vol. I, of 640 pages, contains $3\frac{3}{4}$ formulæ for each page or 15 times as many per page as the same subject in Ganot.

Similarly in economics, mathematical treatment is relatively useful as the relations become relatively complicated. The introduction of mathematical method marks a stage of growth—perhaps it is not too extravagant to say, the entrance of political economy on a scientific era.

§ 5.

Has the mathematical method attained a firm footing? Before Jevons all the many attempts at mathematical treatment fell flat. Every writer suffered complete oblivion until Jevons unearthed their volumes in his bibliography. One chief reason for this is that these writers misconceived the application of mathematics. I think this was true even of the distinguished Whewell. Jevons thinks it is so of Canard though his work was crowned by the French institute. The second reason for this oblivion is that the world was not prepared for it. The movement was too advanced and premature. Cournot certainly, Gossen possibly, now exert considerable influence on economic thought. Marshall, whose recent book is acknowledged to be to modern economics what Mill's was to the economics of a generation ago repeatedly expresses his admiration for and obligation to Cournot.

Thus the mathematical method really began with Jevons in 1871. Up to this time pol. econ. had been the favorite field for those persons whose tastes were semi-scientific and semi-literary or historical. But the scientific and literary temper are seldom equally balanced and as might have been expected after once beginning to divide they have steadily differentiated. On the one extreme is the histori-

cal school of Roscher and Leslie, on the other the mathematical, deductive, or so-called Austrian school of Jevons, Menger and Walras, while the "orthodox" economists the legitimate successors of Adam Smith, Ricardo and Mill constitute the central body from which both have split. This cleavage is, however, largely a division of the field of research rather than opposed theories or methods on the same field.

The mathematical economics apparently has its warmest adherents in Austria, Italy and Denmark. France occupies the next position, while England, America and Germany have their individual enthusiasts but are still restrained largely by classic traditions. Prof. Pantaleoni thinks "the most active movement in Italian pol. econ. is that of the new school styled rather inexactly the "Austrian,"* while Graziani says that the utility theory of value "seems to close the evolutionary cycle of Italian thought."*

In England, Prof. Edgeworth, noted for his enthusiasm on mathematical economics, has recently been elected to the chair of pol. econ. at Oxford, while Prof. Marshall is carrying forward the same movement at Cambridge.

There has been a great increase in mathematico-economic literature since 1871. Just two decades have passed by since Jevons' epoch-making books appeared. Of the mathematico-economic writings† appearing in this period which here come to my notice, the number in the first decade was 30, representing 12 writers, while in the second decade it was 66, representing 23 writers. From all apparent evidence the mathematical method has come to stay.

§ 6.

We can see why this is so if we glance at the work which the mathematical method has already accomplished. It is perhaps fair to credit the idea of marginal utility to mathematical method. This idea had five independent origins with Dupuit, Gossen, Jevons, Menger, and Walras. All except Menger presented this idea and presumably attained it by mathematical methods. No idea has been more fruitful in the history of the science. This one achievement is a sufficient vindication of the mathematical method.

* Article on Economics in Italy, by Prof. Ugo Rabberio, *Pol. Sci. Quart.*, Sept., 1891, pp. 439-473.

† I have not even included here Menger, Böhm-Bawerk and other writers of the Austrian school, who in spite of a mathematical tone have omitted to use mathematical symbols.

To pass in review all that has been done in expanding and applying the idea of marginal utility (and most of this expansion has been purely mathematical) would not be possible here, nor would it be possible to state all the other notions which have grown out of a mathematical treatment. It has corrected numerous errors and confusion of thought. This correcting function has really been the chief mission of mathematics in the field of physics though few not themselves physicists are aware of the fact.

In fact the ideas of marginal utility and disutility may be regarded as corrections of two old and apparently inconsistent theories of value—the utility theory and the cost of production theory. Utility was first thought of as proportional to commodity. (That this was never *explicitly* assumed is a splendid illustration of how without a careful mathematical analysis in which every magnitude has definite meaning, tacit assumptions creep in and confuse the mind). It was next pointed out that utility could not explain price since water was useful. So “utility” and “scarcity” were jointly privileged to determine price. It was Jevons’ clear and mathematical exposition of utility which showed the shallowness of the former discussion and brought to light the preposterous tacit assumption, unchallenged because unseen, that each glass of water has an inherent utility independent of the number of glasses already drunk.

Jevons laid emphasis on *demand*. Many who accepted his work were still applying the analogous errors to supply. Ricardo* had indicated the idea of marginal cost. But even Mill did not perceive its extension beyond agricultural produce. Considerable credit belongs to Auspitz und Lieben for working out the legitimate consequences and showing by a beautiful mathematical presentation that the marginal utility theory and the marginal cost theory are not opposed but supplementary. In fact the “margin” itself is determined by the condition that the utility and the cost of final increments shall be equal (when measured in money).

Mathematical method is to be credited with the development of the ideas of consumers’ and producers’ rent or gain so ingeniously applied by Auspitz und Lieben and so conspicuous in the original article of Prof. J. B. Clark on the law of the three rents.† The intimate and mathematically necessary relation between the equality of marginal utilities and disutilities and the maximum sum of consumers’ and producers’ rent, a theorem emphasized by Auspitz und Lieben, and Edgeworth, is of course due to the mathematical instrument.

* Pol. Econ., Ch. 2.

† Quart. Jour. Econ., April, 1891.

Mathematical method is making a new set of classifications based on mathematical properties. Thus the classification by Auspitz und Lieben of all commodities into three groups* is, I believe, a new one, and one suggested by, and readily discussed by the use of their diagrams. The classification of capital into free and sunk is one which is emphasized by the mathematical writers, as Marshall, and is bearing fruit.†

I believe therefore that mathematical method has made several real contributions to economics, and that it is destined to make more. To verify this statement I would refer the reader to the books mentioned in the bibliography among recent writers, especially Walras, Auspitz & Lieben, Marshall, Edgeworth, Wicksteed and Cunyng-hame; also, if it is proper to include those writers, who while avoiding mathematical language are interpreting and extending the same ideas, Menger, Wieser, Böhm-Bawerk, Clark and Hobson.

§ 7.

It may not be amiss to present a list of quotations from those who have pursued or admired the mathematical path:

Whewell‡ says: [Mathematical method in mechanics saves scientists three errors, viz:] "They might have assumed their principles wrongly, they might have reasoned falsely from them in consequence of the complexity of the problem, or they might have neglected the disturbing causes which interfered with the effect of the principal forces. * * * It appears, I think, that the sciences of mechanics and political economy are so far analogous that something of the same advantage may be looked for from the application of mathematics in the case of political economy." Again:§ "This mode of treatment might be expected to show more clearly than any other within what limits and under what conditions propositions in political economy are true."

Cournot:|| L'emploi des signes mathématiques, est chose naturelle toutes les fois qu'il s'agit de discuter des relations entre des grandeurs; et lors même qu'ils ne seraient pas rigoureusement nécessaires, s'ils peuvent faciliter l'exposition, la rendre plus concise, mettre sur la voie de développements plus étendus, prévenir les écarts

* Page 46.

† See Cunyng-hame, *Geom. Meth. of treating exchange value, monopoly, and rent*. *Econ. Jour.*, March, '92, p. 35.

‡ *Cambridge Philosophical Transactions*, 1830, p. 194.

§ *Cambridge Philosophical Transactions*, 1856, p. 1.

|| *Principes math. de la théorie des richesses*, 1838. Preface, p. viii.

d'une vague argumentation, il serait peu philosophique de les rebuter, parce qu'ils ne sont pas également familiers à tous les lecteurs et qu'on s'en est quelquefois servi à faux."

Gossen.* Was einem Kopernikus zur Erklärung des Zusammenseins der Welten im Raum zu leisten gelang, das glaube ich für die Erklärung des Zusammenseins der Menschen auf der Erdoberfläche zu leisten. * * * Darum ist es denn eben so unmöglich, die wahre Nationalökonomie ohne Hülfe der Mathematik vorzutragen, wie dieses bei der wahren Astronomie, der wahren Physik, Mechanik u. s. w."

Jevons.† "I have long thought that as it deals throughout with quantities, it must be a mathematical science in matter if not in language. I have endeavored to arrive at accurate quantitative notions concerning utility, value, labor, capital, etc., and I have often been surprised to find how clearly some of the most difficult notions, especially that most puzzling of notions *value*, admits of mathematical analysis and expression."

Walras.‡ "Je crois bien que les notations qui y sont employées paraissent tout d'abord un peu compliquées; mais je prie le lecteur de ne point se rebuter de cette complication qui est inhérente au sujet et qui en constitue d'ailleurs la seule difficulté mathématique. Le système de ces notations une fois compris le système des phénomènes économiques est en quelque sorte compris par cela même."

Newcomb.§ "To ultimately expect from pol. econ. results of such certainty and exactness, that it can present the legislator with numerical predictions like those we have described is by no means hopeless." * * * * "Mathematical analysis is simply the application to logical deduction of a language more unambiguous, more precise, and for this particular purpose, more powerful than ordinary language."

Launhardt.|| "Es ist ja die Mathematik nichts anderes als eine Sprache, welche in strenger Folgerichtigkeit die Beziehungen messbare Dinge zu einander darstellt, was durch die gewöhnliche Sprache entweder gar nicht oder doch nur in weitschweifiger ungenauer Weise erreicht werden kann."

* Menschlicher Verkehr. Preface, p. v.

† Preface to first edition, p. vii.

‡ Econ. pol. pure, 1874, Preface, p. vi.

§ The method and province of pol. econ. [Review of Cairne's logical method in pol. econ.], N. Amer. Rev., No. CCXLIX, 1875, p. 259.

|| Volkswirtschaftslehre: Preface, p. v.

Wicksteed.^{*} "The diagrammatic method of studying economics may be regarded from three points of view : (I) many teachers find in it a stimulating and helpful appeal to the eye and use it as a short and telling way of making statements and registering results. (II) a few students treat it as a potent instrument for giving precision to hypotheses in the first instance and then for rigorously analysing and investigating the results that flow from them. (III) a very few investigators (among whom I think we must rank Jevons), have hoped ultimately to pass beyond the field of pure hypotheses and analysis and to build up constructive results upon empirical curves of economic phenomena established by observation."

Fowcett† [speaking of the mathematics of Jevons and Marshall] : "It has made it impossible for the educated economist to mistake the limits of theory and practice or to repeat the confusion which brought the study into discredit and almost arrested its growth."

Auspitz und Lieben.‡ "Wir haben uns bei unseren Untersuchungen der analytischen Methode und namentlich der graphischen Darstellung bedient, nicht nur weil sich diese Behandlungsweise überall, wo sie überhaupt anwendbar ist, und namentlich in den naturwissenschaftlichen Fächern glänzend bewährt hat, sondern hauptsächlich auch darum weil sie eine Präzision mit sich bringt, welche alle aus vieldeutigen Wort-definitionen entspringender Missverständnisse ausschließt."

Edgeworth.§ * * * "the various effects of a tax or other impediment, which most students find it so difficult to trace in Mill's laborious chapters, are visible almost at a glance by the aid of the mathematical instrument. It takes Prof. Sidgwick a good many words to convey by way of a particular instance that it is possible for a nation by a judiciously regulated tariff, to benefit itself at the expense of the foreigner. The truth in its generality is more clearly contemplated by the aid of diagrams. * * * There seems to be a natural affinity between the phenomena of supply and demand, and some of the fundamental conceptions of mathematics, such as the relation between function and variable * * * and the first principle

* On certain passages in Jevons' "Theory of pol. econ." *Quart. Jour. Econ.*, April, '89, p. 293.

† The Economic Movement in England, *Quart. Jour. Econ.*, Oct., '88.

‡ Untersuchungen. Preface, p. xiii.

§ Address before Brit. Assoc. as president of the section on economic science and statistics. Published in *Nature*, Sept. 19, '89, p. 497.

of the differential calculus; especially in its application to the determination of *maxima* and *minima*." [It seems to] "supply to political economy what Whewell would have called 'appropriate and clear' conceptions. * * * Algebra and geometry are to ordinary language in political economy somewhat as quaternions are to ordinary algebraic geometry in mathematical physics" (Quotes Maxwell on quaternions: "I am convinced that the introduction of the ideas as distinguished from the operations and methods * * * will be of great use.")

Again: * "I do not mean that the mathematical method should form part of the curriculum as we make Greek obligatory for the students of philosophy. But may we not hope that the higher path will sometimes be pursued by those candidates who offer *special subjects* for examination."

Marshall:† "It is not easy to get a clear full view of continuity in this aspect without the aid either of mathematical symbols or diagrams. * * * * experience seems to show that they give a firmer grasp of many important principles than can be got without their aid; and there are many problems of pure theory, which no one who has once learnt to use diagrams will willingly handle in any other way.

The chief use of pure mathematics in economic questions seems to be in helping a person to write down quickly, shortly and exactly, some of his thoughts for his own use: and to make sure that he has enough, and only enough, premises for his conclusions (i. e. that his equations are neither more nor less in number than his unknowns). But when a great many symbols have to be used, they become very laborious to any one but the writer himself. And though Cournot's genius must give a new mental activity to every one who passes through his hands, and mathematicians of calibre similar to his may use their favorite weapons in clearing a way for themselves to the center of some of those difficult problems of economic theory, of which only the outer fringe has yet been touched; yet it is doubtful whether any one spends his time well in reading lengthy translations of economic doctrines into mathematics, that have not been made by himself. A few specimens of those applications of mathematical language which have proved most useful for my own purpose have, however, been added in an Appendix."

* An introductory lecture on pol. econ. delivered before the University of Oxford, Oct. 23d, 1891, published in *Economic Journal*, Vol. i, No. 4, p. 629.

† *Prin. of Econ.* Preface to first Ed., p. xiv; in 2d ed.

Cunynghame.* “But curves play in the study of pol. econ. much the same part as the moods and figures play in logic. They do not perhaps assist in original thought, but they afford a system by means of which error can be promptly and certainly detected and demonstrated. And as in logic so in graphic pol. econ. the chief difficulty is not to solve the problem, but to state it in geometrical language.”

§ 8.

Contrast with the preceding the following statements from a few who can see nothing good in mathematical method :

A writer in the “Saturday Review” (Nov. 11, 1871), quoted by Prof. Edgeworth† says of Jevons : “The equations, * * * assuming them to be legitimate, seem to us to be simply useless so long as the functions are obviously indeterminable.” [Mathematics studies *relations* as well as *calculations*. Numerical indeterminability is common even in mathematical physics.]

Cairnes:‡ “Having weighed Prof. Jevons’s argument to the best of my ability, and so far as this is possible for one unversed in mathematics, I still adhere to my original view. So far as I can see, economic truths are not discoverable through the instrumentality of mathematics. If this view be unsound, there is at hand an easy means of refutation—the production of an economic truth, not before known, which has been thus arrived at ; but I am not aware that up to the present any such evidence has been furnished of the efficiency of the mathematical method. In taking this ground, I have no desire to deny that it may be possible to employ geometrical diagrams or mathematical formulæ for the purpose of exhibiting economic doctrines *reached by other paths*, and it may be that there are minds for which this mode of presenting the subject has advantages. What I venture to deny is the doctrine which Prof. Jevons and others have advanced—that economic knowledge can be extended by such means ; that mathematics can be applied to the development of economic truth, as it has been applied to the development of mechanical and physical truth ; and, unless it can be

* Geometrical methods of treating exchange value, monopoly and rent. H. Cunynghame. *Econ. Jour.*, March, ’92, p. 35.

† *Math.-Psychics*, p. 119.

‡ *The Character and Logical Method of pol. econ.* New York, 1875. Preface. See also, p. 122 ; also: *Some leading principles of pol. econ. newly expounded.* Preface.

shown either that mental feelings admit of being expressed in precise quantitative forms, or, on the other hand, that economic phenomena do not depend upon mental feelings, I am unable to see how this conclusion can be avoided." [There are examples in Cournot, Walras, Auspitz und Lieben, Marshall, etc., which I think are fair instances of the "production of an economic truth, not before known." It is admitted, however, that each of these truths could have been discovered without "mathematical method" by some remarkably clear headed reasoner. *But the same is true in physics.* The deduction used in every physical truth could be reasoned out without diagrams or formulæ. A railway will best convey a man from New York to San Francisco though it is perfectly possible to walk. Cairnes certainly has an erroneous idea of the use of mathematical method in physical investigations. Mathematics afford the physicist a complete and precise view of his subject, and this condition of mind permits and facilitates his discovery. The discovery is only indirectly due to mathematics though it might never have been made without it. Cairnes apparently thinks that physical truth has been discovered by the manipulation of equations. The history of physics will not bear him out. So far as I know only one physical discovery was made in that way—a discovery in light. See the quotation from Peirce at the beginning of this appendix.]

*Wagner** [in reviewing Marshall's *Prin. of Econ.*]: "I do not believe that this mode of treating the subject has an independent value of its own for solving our problems. Indeed Marshall himself admits as much [does he? Cf. preceding statement of Marshall.]

* * * He has used diagrams and formulæ only for purposes of illustration and for greater precision of statement." [Diagrams and formulæ are never used for any other purpose yet they surely have an independent value in (say) physics. Cf. § 1.]

Ingram.† "There is not much encouragement to pursue such researches, which will in fact never be anything more than academic playthings, and which involve the very real evil of restoring the metaphysical entities previously discarded." Also,‡ "Units of animal or moral satisfaction, of utility and the like are as foreign to positive science as a unit of dormative faculty would be." [See Part I, Ch. I]. Also:§ "Mathematics can indeed formulate ratios of exchange when

* *Quart. Jour. Ec.*, April, '91, p. 327.

† *Ency. Brit.*, 9th ed. Vol. xix, p. 399.

‡ *Ency. Brit.*, 9th ed. Vol. xix, p. 386.

§ *Hist. Pol. Econ.*, *New York*, 1888, p. 182.

they have once been observed; but it cannot by any process of its own determine those ratios; for quantitative conclusions imply quantitative premises and these are wanting. There is then no future for this kind of study, and it is only waste of intellectual power to pursue it." [What a "therefore"! Why require mathematics to predict prices in order to be admitted into good society with the historical school? No mathematical economist has ever tried to do this. Dr. Ingram does not discuss what mathematics has done or attempted, but complains loudly that it cannot do everything and therefore has no future.]

*Rabberio** in speaking of Prof. Pantaleoni's *Principi di Economia Pura* says: "As a monument of abstract logic, it bears fresh witness to the unusual qualities of the author's genius; but it is based on a method which, frankly speaking, I consider dangerous. In the face of pressing practical problems of every kind, both in production and in distribution, economic thought is drawn off into the field of barren abstractions. Under an attractive semblance of mathematical accuracy these abstractions conceal much that is really false; for they do not correspond in the least to the complexity of concrete facts. While they distract the student with an imaginary logical construction, they lessen his interest in that positive study which tells us what is, whereas logic by itself gives us only what is thought. Thus in last result they deprive economic science of that great practical importance which it should have in society." [I am not acquainted with Prof. Pantaleoni's book nor with any Italian writer. As to the criticism on mathematical method, however, I may say that experience in other sciences shows that "in face of many practical problems" it is wisest to "draw off thought" for a time to pure theory. Before solving the problems of cannon projectiles it is best to solve the problem of projectiles in general. Before an engineer is fit to build the Brooklyn bridge or to pronounce on it after it is built it is necessary to study mathematics, mechanics, the *theory* of stress and of the natural curve of a hanging rope, etc., etc. So also before applying political economy to railway rates, to the problems of trusts, to the explanation of some current crisis, it is best to develop the *theory* of pol. econ. in general. When these special "practical problems" are examined the mathematical instrument will, I believe, often be the one to get the best results.

I am far from denying, however, that some mathematical economists have exhibited a "false accuracy." It has been due to

* *Economics in Italy*, Prof. Ugo Rabberio, *Pol. Sci. Quart.*, Sept. 1891, p. 462.

making special assumptions not with the purpose of facilitating economic investigation but for permitting algebraic transformation. A writer who intentionally parades his mathematics really does the cause of mathematical economics much harm. I venture to think that Launhardt's Volkswirtschaftslehre which contains some excellent things would have exhibited these excellencies better if the author had contented himself with solving problems in all their generality].

§ 9.

I cannot refrain from venturing an opinion the application of which may not apply to all of those writers just quoted but which certainly applies to many: Mathematics is looked upon as an intruder by those students of economics who have not had the mathematical education to understand and make use of them, and who are unwilling to believe that others enjoy a point of view unattainable by themselves. A friend of mine much interested in economics asked me what was the service of mathematics in the subject. On hearing my reply he said: "Well, I don't like to admit that I can't understand economics as well as those who have studied higher mathematics."

Thus part at least of the opposition to mathematical method is a mere incident to its novelty. It must be remembered that the character of economists is itself a variable and from generation to generation those choose or reject the pursuit of economics according to what it is at the time of choice. It may not be rash to expect that the next generation of the theoretical (as distinct from historical) economists will have fitted themselves by mathematical training for this mode of treating their theme, and that they will be such men as by natural aptitude can so fit themselves.

§ 10.

The effort of the economist is to *see*, to picture the interplay of economic elements. The more clearly cut these elements appear in his vision, the better; the more elements he can grasp and hold in mind at once, the better. The economic world is a misty region. The first explorers used unaided vision. Mathematics is the lantern by which what before was dimly visible now looms up in firm, bold outlines. The old phantasmagoria disappear. We see better. We also see further.

APPENDIX IV.

BIBLIOGRAPHY OF MATHEMATICO-ECONOMIC WRITINGS.

§ 1.

A bibliography of mathematico-economic writings was constructed by Jevons and extended* by his wife up to 1888. This list contains a number of works mathematical in tone only. I have selected out of the whole number (196), those 50 which are either undoubtedly mathematical or are closely associated logically or historically with the mathematical method. Thus Menger, though his writings are not explicitly mathematical, is included for he founded the "Austrian School" which has ever since been allied with the mathematical method. In this selected list the references are much abbreviated and only the first edition of each work is cited.

The second list is intended to be an extension of that of Jevons up to the present date. I shall be indebted for information as to inaccuracies and omissions. A star has been placed opposite those writings in which mathematical method is employed only occasionally or whose mathematical character is not explicitly expressed in symbols or diagrams. In the case of Italian and Danish writings, with which I am wholly unacquainted and in the case of a large number of others which I have not been able to see and examine, I have been guided by book notices or the wording of the title.

The list in Jevons' appendix and the second list here given may be taken as a reasonably complete bibliography of mathematico-economic writings in the broadest sense, while the unstarred writings in the abridged list of Jevons here quoted together with the unstarred writings in the second list represent the economic literature which is strictly and avowedly mathematical. The distinction between these two classes is tolerably well marked.

§ 2.

SELECTED FROM JEVONS.

- 1711 CEVA—De re nummaria quoad fieri potuit geometrice Nactata.
- 1765 BECCARIA—Tentativo analitico sui contrabandi. Etc.
- 1801 CANARD—Principes d'économie politique.
- 1824 THOMPSON—Instrument of Exchange.
- 1826 von THÜNEN—Der isolirte Staat, etc.

* Pol. Econ., Appendix I to third edition, 1888.

- 1829 WHEWELL—Mathematical Exposition of some Doctrines of Pol. Econ.
- 1838 COURNOT—Recherches sur les principes math. de la théorie des richesses.
- 1838 TOZER—Math. Investigation of the Effect of Machinery, etc.
- 1840 ANONYMOUS—On Currency.
- 1840 TOZER—On the Effect of the Non-Residence of Landlords, etc.
- 1844 DUPUIT—De la mesure de l'utilité des travaux publics.
- 1844 HAGEN—Die Nothwendigkeit der Handelsfreiheit, etc.
- 1847 BORDAS—De la mesure de l'utilité des travaux publics.
- 1849 DUPUIT—De l'influence des péages sur l'utilité des voies de communication.
- 1850 LARDNER—Railway Economy (chapter xiii).
- 1850 WHEWELL—Mathematical Exposition of Certain Doctrines of Pol. Econ.
- 1854 GOSSEN—Entwicklung der Gesetze des menschlichen Verkehrs, etc.
- 1856 BENNER—Théorie mathématique de l'économie politique.
- 1863 MANGOLDT—Grundriss der Volkswirtschaftslehre.
- 1864 FAUVEAU—Considérations math. sur la théorie de l'impôt.
- 1867 FAUVEAU—Considérations math. sur la théorie de la valeur.
- 1870 JENKIN—The Graphic Representation of the laws of Sup. and Demand, etc.
- 1871 JEVONS—The Theory of Political Economy.
- 1871* Menger—Grundsätze der Volkswirtschaftslehre.
- 1872 LAUNHARDT—Kommerzielle Trassirung der Verkehrswege.
- 1873 POCHET—Géométrie des jeux de Bourse.
- 1874 WALRAS—Principe d'une théorie math. de l'échange.
- 1874 WALRAS—Éléments d'économie politique pure.
- 1874* LETORT—De l'application des math. à l'étude de l'écon. pol.
- 1875* DARWIN—The Theory of Exchange Value.
- 1875* BOCCARDO—Dell' applicazione dei metodi quantitativi, etc.
- 1876 WALRAS—Equations de l'échange, etc.
- 1876 WALRAS—Équations de la capitalisation.
- 1876 WESTERGAARD—Den moralske Formue og det moralske Haab.
- 1878* WEISZ—Die mathematische Methode in der Nationalökonomie.
- 1879 WALRAS—Théorie math. du billet de banque.
- 1881 EDGEWORTH—Mathematical Psychics.
- 1881 WALRAS—Théorie math. du bimétallisme.
- 1883 LAUNHARDT—Wirtschaftliche Fragen des Eisenbahnwesens.
- 1884* WIESER—Hauptgesetze des wirtschaftlichen Werthes.
- 1885 LAUNHARDT—Math. Begründung der Volkswirtschaftslehre.
- 1886 GROSSMAN—Die Math. im Dienste der Nationalökonomie. I Lieferung.
- 1886* NEWCOMB—Principles of Political Economy.
- 1886* BÖHM-BAWERK—Theorie des wirtschaftlichen Güterwerts.
- 1886 ANTONELLI—Teoria math. della economica politica.
- 1886 GROSSMAN—Die Math. im Dienste der Nationalökonomie. II Lieferung.
- 1887 VAN DORSTEN—Math. onderzoekingen op het gebied Staathuishoudkunde.
- 1887 WESTERGAARD—Math. i Nationaløkonomiens Tjeneste.
- 1887 PANTALEONI—Teoria della pressione tributaria, etc.
- 1888 WICKSTEED—The Alphabet of Economic Science.

§ 3.

EXTENSION OF JEVONS' BIBLIOGRAPHY.

- 1867 WITTSTEIN—*Mathem. Statistik.* *Hanover.*
- 1882 PANTALEONI (M.)—*La Traslazione dei Tributi.* *Rome. Paolini.*
- 1884 SCHROEDER (E. A.)—*Das Unternehmen und der Unternehmergewinn vom historischen, theoretischen und praktischen Standpunkte.* *Wien.* 92 pp.
- 1884* SAX (E.)—*Das Wesen und die Aufgabe der Nationalökonomie.*
- 1887* SAX (E.)—*Grundlegung der theoretischen Staatswirthschaft.*
- 1887 PICARD (A.)—*Traité des Chemins de fer.* 4 vols. *Paris: Rothschild.*
- 1888 EDGEWORTH (F. Y.)—*New method of measuring variations in general prices.* *Jour. Stat. Soc. London,* p. 347.
- 1888* SAX (E.)—*Die neuesten Fortschritte der nationalökonomischen Theorie.* Vortrag gehalten in Dresden märz. *Leipzig: Duncker & Humblot.* 8vo. 38 pp.
- 1888* Menger (C.)—*Contribution à la théorie du Capital.* [Trans. from *Jahrb. für Nat. Oek.,* by C. Secrétan.] *Rev. d'Écon. Pol., Dec. '88.*
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STUDIES
IN THE
ENGLISH MYSTERY PLAYS

A THESIS PRESENTED TO THE PHILOSOPHICAL FACULTY OF
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I.

THE DRAMATIC ELEMENT IN THE LITURGY.

The tragic drama demands a noble soul seeking expression amid adverse conditions, or held back from its goal through collision with opposing circumstance. When the ideal dies out from society the drama dies, or lives only as an echo of the masters so long as the remembrance of former ambitions dwells in the minds of men. For this reason the Roman drama died. At best it was but an echo of the Greek, since ideality was not a Roman trait. At worst, when the integrity of the Roman had yielded to a disbelief in all high aims, it became abhorrent to all right-thinking men. The vulgar called for realistic brutality in the amphitheatre and for beastly lust upon the stage, and the nobles, with a cynicism born of negations, hastened to do their bidding. The genius of the drama forsook the stage for the byeways and hedges, where, as mime and farce, it could still appeal to nature in the primitive man.

The Western world was again without a drama. It had broken the traditions that bound it to the old, and must seek in some new channel for thoughts worthy of dramatic expression. The early Greeks found such in the worship of Dionysus; the inheritors of their worn-out civilization felt in the profoundest sense a dynamic idea in the Christian faith.

We have, then, to seek the sources of the new drama in the Christian ideals.

The climax of a tragedy in life was recognized in the marvelous self-sacrifice of Christ. Around the Eucharist, the memorial of thanksgiving for that death and resurrection, grew up the Christian worship. As a fit approach to that solemn feast, various acts of preparation were introduced, until, as a result, an established mode of procedure, a formal liturgy, expressed the devotion of the disciple not less by action than by word.

At first the familiar worship of the synagogue suggested appropriate additions; and prayers¹ in common, consisting of praise, reading, and supplication,² formed a fit introduction to the Eucha-

¹ Acts 2, 42.

² Burbidge, p. 3.

rist. That this did not, however, become a fixed form within the first century is evident, since *The Teaching of the Twelve Apostles*, after the short outline of a service, adds "But permit the prophets to give thanks in what terms they will,"¹ and Clemens Romanus (97 A. D.) exhorts the Corinthian Church to preserve due order and unity, and makes mention of the Jewish system of priests and sacrifices as furnishing patterns for Christians to follow.² Such instructions reveal the pervading influence of Jewish rites and the fluidity of prevailing customs.

The Church, however, was passing into the hands of the Greeks, whose logical and artistic bent of mind sought immediate expression in their adopted worship. There are many evidences to show that the Greeks from the first sought to adorn and extend the ritual from the stores of their own civilization. Dr. Schaff³ declares that "the Hellenists were much more liberal than the Palestinian Jews. This is evident in the whole Church at Antioch." To the Greeks, then, must we look for the liberalizing of the provincial notions of the Jew.

From such sources, combining Jewish and Grecian elements, the Christian liturgy slowly grew up, until in 103 A. D. Pliny could report⁴ to the Emperor Trajan, on the testimony of renegade Christians,

That they had been accustomed on a stated day to assemble before light, and sing amongst themselves in turn a hymn to Christ as God, and to bind themselves by an oath not to commit any crime, but that they would not commit theft or robbery or adultery, nor break their word, nor be false in that which was entrusted to them; and that after this it was their custom to separate, and to meet again to take a meal, but that it was in common and harmless.

This report would seem to reveal to us a divided service; in the early morning a song service with a solemn oath before the day's duties, and later the communion; but we must remember that this is the report of an outsider who may have understood the matter but imperfectly. The Christians adopted fixed hours of prayer from the Jews,⁵ one of which was in the early morning. It is quite possible that Pliny confused the morning hour of prayer with the day service. This seems the more probable, since thirty-six years later (A. D. 139) Justin Martyr reports a much more developed service. He says :⁶

¹ Burbidge, p. 20.

⁴ Burbidge, p. 20.

² Burbidge, p. 5.

⁵ Burbidge, p. 112.

³ Schaff, vol. 1, p. 87.

⁶ Burbidge, p. 27.

On the day called Sunday a meeting takes place of all who dwell in cities or in the country, and the memoirs of the Apostles or the writings of the Prophets are read as long as time permits. Then, when the reader ceases, the one who takes the lead admonishes by word of mouth and exhorts to the imitation of these good things. Then we all rise together and put up prayers; and, as was said before, when we have ceased from prayer, bread is offered and wine and water, and he who takes the lead puts up prayers likewise, and thanksgivings according to his ability, and the people give their assent, saying, Amen.

Justin Martyr knew the church service, and his report is authoritative. It reveals a more formal service than that of the first decades, the exercises consisting of Reading, Exhortations, Prayer, the Eucharist, and Thanksgiving. These he names, as we judge from later liturgies, in the order of service. The Eucharist, a thanksgiving in act, closing appropriately with a thanksgiving in word, is fitly introduced by the Prophets or Acts, with exhortation and prayer.

Two hundred years pass by within which is found no extended report of the manner of worship. Then appear the Apostolic Constitutions, from which is drawn the so-called Clementine Liturgy, which is as follows :¹

Lection from Law and Prophets.²

Lection from Epistles.

Lection from Gospels.

Sermon.

Litanies for Catechumens, etc., and Dismissal.

Litany for Faithful.

The Peace of God be with you all.

Kiss of Peace.

Washing of Hands.

Offering of the Gifts.³

Prayer of Bishop.

The Grace of Almighty God, and the Love, etc.

Sursum Corda.

Preface ending with Sanctus.

Commemoration of the work of Redemption.

Words of Institution : In the night in which He was betrayed.

Offering in remembrance of Passion.

Invocation of Holy Spirit.

Prayer for the whole Church, including the faithful departed.

Peace of God be with you all. Prayer of Humble Access.

Holy things to Holy. R. One holy, etc. Glory to God in the highest, etc.

Communion. Psalm xxxiv.

Thanksgiving.

Blessing.

¹ Burbidge, Front.

² The Little Entrance or Introit.

³ The Great Entrance or Offertory.

In this liturgy of the fourth century we see much more clearly the dramatic character of the service, which may now be roughly divided into two acts. The Eucharist holds as ever the commanding position. The first act is one of preparation ; the second leads directly to the Eucharist, its fitting climax.

As to the method of division in this inchoate drama there may be different views. Klein,¹ having in mind the Liturgy of St. Chrysostom,² in which a 'Preparation' precedes the Introit, casts the church service into three acts, the first closing immediately before the Introit, the second before the Great Entrance. Dr. Schaff³ holds that every Oriental liturgy is a symbolical drama of two acts, the second act beginning with *Sursum Corda*. It might be as satisfactory to consider the liturgy as a drama of two acts, the first beginning with the Introit—the Introduction, where there is one, being treated as a species of prologue—and the second opening with the Great Entrance.

The exact method of division is immaterial. The fact remains that we have in the Clementine Liturgy a dramatic framework which needed only the interspersion of the quick exchange of act and speech to form a veritable drama. This need, however, was a serious one, and a rival sect was not slow, as we shall see, to take advantage of the defect.

In some form singing of psalms had been a feature of the church worship from the first. There had been some definite assignment of musical parts in temple and synagogue worship ;⁴ moreover, Psalms 24 and 134 appear to have been composed for antiphonal singing. Philo speaks of such singing among the Essenes, in language which agrees closely with that used by Basil, Bishop of Cæsarea, in 370 A. D., when he says,⁵ "And now, divided into two parts, they sing alternately to each other. Afterwards they commit the leading of the melody to one, and the rest follow him." Pliny's statement that the Christians sang "amongst themselves in turn" proves its survival among the Christians.

Nevertheless, whatever the method of singing may have been, that lively alternation, which gives movement and interest to antiphonal singing, must have been lacking. Indeed there are signs that music itself fell into disuse or was of little prominence, for no writer after St. Chrysostom could have omitted, as did Justin Martyr,⁶ all mention of it, in a description of the service.

¹ Klein, vol. 4, p. 10.² Burbridge, Front.³ Schaff, vol. 3, p. 534.⁴ Smith's Dict. of Christian Biog. s. v. Ignatius.⁵ Burbridge, p. 13.⁶ See p. 132.

About the middle of the fourth century the orthodox church saw dark days. The Arian sect, with its taking hymnology, was militant in the Christian world. The orthodox Bishop of Antioch was driven into exile, and the fortunes of the faithful sank to a low ebb. It was at this time, tradition says, that Flavius¹ and Diodorus of Antioch revived—or, possibly more accurately, invented—antiphonal singing. In any case, the time was ripe for it. St. John Chrysostom² used it in processions to combat Arian hymnology, and Ambrose,³ Bishop of Milan, brought it to the West.

For many characteristics of antiphonal singing the church was probably indebted to the Greek drama. The Arian hymnology had made clear the need of a more prominent musical element, but does not, so far as can now be determined, satisfactorily explain the peculiar arrangement of antiphonal singing. If one will place the liturgical service side by side with one of the old Greek tragic dramas, he will be struck by the correspondence of function between the choir of the one and the chorus of the other. This pertains not alone to the frequent dividing and reuniting of chorus and choir respectively, nor to the distribution of the singing throughout the action of the play and liturgy, but is present in a more subtle sense. The chorus interprets and accentuates the action of the drama, but rarely advances it. The choir discharges the same office continually for the service of the liturgy, as it passes on to its climax in the Eucharist.

If now the Responsoria are added to this forming liturgy—which, however, tradition assigns to the Italians, but which seem so close a copy of the interchange of speech between the protagonist and chorus, and are so strikingly akin to the antiphon that one must suspect a common origin—the liturgy has received in the fourth century that final form and texture which through the use of fifteen centuries has remained practically unaltered. Additions, expansions, intrusions, have at times been made, but the Roman and English liturgies of to-day are essentially the same as St. Chrysostom's Liturgy of the fourth century.

Nor should it be thought singular that the Fathers looked to the classic theater for aid. The theater had a strong hold upon the people; witness Tertullian's⁴ *De Spectaculis* (A. D. 200) against plays, and St. John Chrysostom's⁵ threat of excommunication, if any of his

¹ Smith's Dict. of Christian Biog. s. v. Flavius.

³ Smith's Dict. of Christian Biog. s. v. Ambrose.

⁵ Hase, p. 5.

² Schaff, vol. 3, p. 579.

⁴ Hase, p. 1.

flock attended theaters on holy days. That they should go for aid to the classic plays, which were still used for closet study, is no stranger than that they should adopt the Roman basilica for a church type, or plant Christmas¹ upon the Roman Saturnalia. The church had need of these things, and used them so wisely that it made out of the skeleton of the Clementine Liturgy an artistically complete symbolical drama in the St. Chrysostom Liturgy. The symbolical character of their worship was emphasized by historical, typical, and allegorical² pictures, among which 'Adam and Eve,' the 'Adoration of the Magi,' and the 'Shepherd who carries the Lost Lamb upon his Shoulders' are enumerated.³ Some of these were passing out of use by the middle of the fourth century, as discarded molds, no longer suitable for the thought of the church. Furthermore, the readiness with which the church assimilated Greek culture is easily accounted for when we reflect that⁴ "to Justin Martyr, Origen, and Clement of Alexandria, Greek philosophy was the bridge to the Christian faith."

However, the distance from the symbolical drama to the tragic is not easily passed. It cannot be bridged by any development of symbolism itself. The difference is essential and intrinsic. In the first place, abstract thought that does not admit of concrete presentation cannot form even a symbolical drama. Hence where philosophy, as in India, has dominated thought since the rise of literature, there can be no true drama.

The Hindoos' one attempt to form a mystery play, the Prabodha-Chandrodaya,⁵ the Birth of Ideas, shows, through the superlative hideousness of its allegorical actors, the violent forcing of material into unnatural expression. Even in the florescence of Attic tragedy the authors recognized vaguely that the rising schools of philosophy were their foes. When the domination of Attic thought by philosophy was finally complete, the drama forsook its ideals, and sought for motive in society and intrigue.

In the Christian liturgy, symbolism presented at second hand the concrete embodiment of the profoundest ethical philosophy, since the tableaux and allegories pictured the story of Christ, who offered in his own life and action a solution of the ethical problems of the race. The true literary expression of this material was found in the allegorical poems so abundant in the Middle Ages, which ultimately

¹ Wilken, pp. 1, 2.² Schaff, vol. 2, p. 274.³ I find no evidence of living tableaux in the church at this date, as given by Klein, vol. 4, p. 11.⁴ Schaff, vol. 1, p. 78.⁵ Klein, vol. 3, p. 15.

attained their richest flowering in the *Divina Commedia* and the *Fairy Queen*. The true drama demands material that can be made one with the actor. The profoundest philosophy can be presented, as in *Hamlet* or *King Lear*, but it must be presented indirectly through the life, or the results arising from the life, of the actor.

The tragic drama demands situations that shall excite the deepest emotions in the spectator, and as agent a soul great enough to combat mighty influences, that the beholder's liveliest sympathy may be called into action. Can these conditions be met by a drama that attains its climax in a thank-offering? If not, then, after the symbolical drama was established in the Christian liturgy, further dramatic advance was impossible. The service might be loaded with ornament—incense, genuflections, vestments; but these could only cloud the simple dramatic outline of the early liturgy. The passage to true dramatic expression remained impossible.

Meanwhile, the old drama had sunk into utter darkness, beneath the contempt of men and through the puerility and grossness of its matter. For five centuries the world waited for the drama. From the Christian worship, its proper source, it could not come without some essential change within the liturgy itself, yet the thought of Europe was wholly taken up with the story of the Christ and the wonderful plan of salvation which had been elaborated by the theologians.

It is true that there are signs that a drama might have arisen in time from another source. The pastoral of Theocritus had developed in dialogue. Whether, without the aid of the religious drama, it could have acquired sufficient plot of dramatic quality to form even the pastoral drama which later spread through Western Europe, is an interesting question. Its indebtedness to the religious drama can be plainly seen in Spain, where Enzina¹ used the church drama as an aid to the pastoral, and set the type for Spain and Portugal. But the passage from pastoral to tragedy would have been a giant stride, and proved unnecessary, for within the liturgy grew up the needful tragic motive, and from that sprang the religious drama. It becomes our next task to show the shifting of standpoint within the liturgy which arose from the acceptance of a new theological dogma, to detect the introduction of a genuinely tragic moment, and to trace the growth of dramatic expression within the church service itself.

¹ Ticknor, vol. 1, p. 345.

II.

THE DOCTRINE OF TRANSUBSTANTIATION AS A DRAMATIC MOTIVE.

It is probable that from a very early day the church considered the Eucharist as something more than a commemorative breaking of bread. It is certain that within the first centuries the belief that in some mystical, spiritual sense Christ was present in the Lord's Supper was prevalent in the church. But this mysticism, so attractive to the mind of the Oriental, is contrary to the habits of Western thought, which seeks for reality beneath speculation, and for a philosophy that can be mirrored in the life. Therefore we see without surprise as early as the sixth century signs of approaching materialistic views of the Eucharist. St. Gregory's words,¹ "Take this bread and offer it as a sacrifice for my sins," show that the propitiatory idea was superseding the idea of thank-offering. Still it won its way but slowly. It is not found in the Liturgy of St. Gregory, upon which the mediæval Mass was built, though with many additions.²

Not until the ninth century³ did the doctrine of the Sacrament become an object of controversy. The issue was defined when Radbertus propounded the doctrine of Transubstantiation, in his treatise addressed to Charles the Bald.⁴ The controversy that immediately arose shows how foreign such views were to the theological thought of the time. Nevertheless, once formulated, the tenet rapidly gained credence, and the treatment which Berengar⁵ received in the eleventh century, because he held that Christ was present in the Eucharist in a spiritual sense only, proves how completely the doctrine of the Real Presence had gained the day.

Within these two centuries, from the last half of the ninth to the first half of the eleventh, this most momentous change had taken place in Christian thought. Within these two centuries the dramatic development of the liturgy began in all countries of the Roman Catholic faith. This is more than coincidence. It is cause and effect. The dramatic element, hitherto lacking in the Christian liturgy, was now present through a belief that aroused the most intense emotions in the worshiper. Day after day the devout among the clergy saw the Son of God offered up, a present sacrifice, for their sins. What act of more awful import could be imagined!

¹ Burbidge, p. 95.² Burbidge, p. 67.³ Schaff, vol. 3, p. 492.⁴ McClintock and Strong, s. v. Lord's Supper.⁵ Schaff, vol. 4, p. 556.

And when the church services, following the incidents of His life, came around to the dates of His death and resurrection, what longing must have possessed them to present vividly to the ignorant and heedless multitude those moments now stored for them with such sacred meaning!

The liturgical drama, therefore, is the legitimate outgrowth of a situation well stated by Dr. Schaff:

In the sacrifice of the mass the whole mysterious fulness and glory of the Catholic worship is concentrated. Here the idea of the priesthood reaches its dizzy summit, and here the devotion and awe of the spectator rises to the highest pitch of adoration.¹

Or it may be stated in words which the Catholic Church accepts:

The Church commemorates every day the bloody sacrifice of Jesus Christ on the Cross, by a true and real unbloody sacrifice; in which she offers to God the same body and blood that were given for the sins of the world.²

These words, through continual repetition and the unbelief of our day, no longer appeal, even to those who accept them, with a tithe of the force with which they impressed the credulous minds of mediæval times. To them the immediate result was a notable increase in the spirit of devotion, which expressed itself in the elaborate rituals, and in the desire to present this awful sacrifice to the people as vividly as the priests themselves felt it. This dramatic development of the liturgy did not owe its origin to the frivolous and irreverent among the clergy, though these, doubtless, eagerly seized upon it for amusement, but to the reverent desire of the pious to present Christ's life vividly to the people, a desire that could now find true dramatic expression, since the Mass was no longer a symbol, but a veritable life history, closing before the eyes of the spectators in a most sublime self-sacrifice.

Thus it came about that under the new view of the Eucharist the liturgy presented dramatic moments of heightened interest at each salient point of Christ's career. These fall naturally into two groups: those of his birth and childhood, and those that pertain to his death and resurrection, the latter forming a group of most intensely dramatic value.

As Sunday after Sunday the people see the Christ actually lifted up before them, the sense of the reality of the sacrifice grows. When with Holy Week the altars are stripped and continual supplication and lamentation fill the church, they are prepared to feel on

¹ Schaff, vol. 3, p. 505.

² The Office of the Holy Week.

Good Friday that an actual sacrifice of momentous consequence to them is taking place. The new sense of the import of this sacrifice heightens the devotional feeling in the clergy, and they long to make this as real to the people as it is to themselves, and sometimes to make it as vivid to their own consciousness as it is to their faith. This led to a more realistic presentation of the awful sacrifice and of the joy of the Resurrection.

We must not, however, expect that the history of these dramatic moments will be the same. The Crucifixion was too solemn a thing for elaborate realism, but the Resurrection readily lent itself to dramatic presentation. Therefore we must expect to find the Crucifixion a reverent but slightly developed drama, until it passed into the hands of the people, and time and custom had deadened their sense of its sacredness.

III.

THE DRAMA OF HOLY WEEK IN THE CATHOLIC LITURGY OF MODERN TIMES.

We turn now to the records that remain, and will attempt to trace the development of these two dramatic moments, considering first the dramatic traces in the modern Roman Liturgy of Holy Week, and next in the old English liturgies, passing thence to the more elaborate development in the liturgies of the continent, where we will trace the Crucifixion and the Resurrection independently.

The liturgy of modern times, according to the author¹ chosen, admits of the following sketch of dramatic action.

THE MORNING OFFICE FOR GOOD FRIDAY.

THE MASS.

The Priest and his Ministers, in black vestments, go to the Altar, without lights and incense, and prostrate themselves before it; while the Acolytes cover it with one linen cloth. The gospel is St. John 18. After the prayers the Priest puts off his vestment, and taking from the Altar the Cross covered with a veil, he goes to the epistle-corner, where he uncovers the top of it, and shows it to the people, singing the Antiphon: *Ecce lignum crucis*. Then the Deacon and Subdeacon join with him in singing the rest: *In quo salus mundi pependit*. And the choir prostrate on the ground answers: *Venite, adoremus*. From thence the Priest proceeds to the right side of the Altar, where he uncovers the right arm of the Cross, singing a second time, *ecce lignum*, as before. Lastly, he goes

¹ The Office of the Holy Week.

to the middle of the Altar, and uncovers the whole Cross, singing a third time, *ecce lignum*. After this, he carries it to a place prepared before the Altar, where he adores first himself, and then the clergy and laity, all kneeling thrice on both knees, and kissing the feet of the Crucifix. When the adoration of the Cross is almost finished, the candles upon the Altar are lighted, and after the adoration the Cross is placed again upon the Altar.

Afterwards the Priest receives in communion the host that has been consecrated on Maundy Thursday, and placed in a tabernacle appropriately decorated and lighted.

There is in this no sign of the mediæval custom of placing Christ in the sepulchre, but our author states that a custom, which is very significant, is observed by the laity. After the host is placed in the tabernacle on Maundy Thursday, it is visited by the laity, who call this 'Visiting Sepulchres,'¹ which our author cannot reconcile with "lights and the richest ornaments; things very unbecoming a sepulchre."

This custom is, however, easily explained, if we compare with the modern service the ceremony as given by the York Missal² of the twelfth century. I omit all before the adoration, as the variations are unimportant and foreign to our purpose. It reads :

Dum populus adorât, canatur Antiphona cum Versu. . . . Tandem adorata Cruce, bajulent eam duo Vicarii usque ad locum sepulcri, ubi Prælatus eam accipiens incipiat has Antiphonas, et Chorus finiat. . . . Postea Prælatus ponat flexis genibus Crucem in sepulchro et duos cereos accensos cum duobus urceis; postea thurificet eam, et tunc erectus incipiat Antiphonam.

Although in the Missal for Good Friday nothing is said about placing a host with the crucifix in the sepulchre, we know that it was done; for, in the Missal for Thursday, *Feria V. in die Cenæ*, we read:³

*Ponantur a Diacono tres hostiæ ad consecrandum, quarum duæ reserventur in crastinum, una ad percipiendum ab Executore Officii; reliqua, ut ponatur cum Cruce in Sepulchro.*⁴

¹ The Office of the Holy Week, p. 183.

² The York Missal, vol. 1, pp. 106-7. Note.—MS. A, owned by Rev. John Gott, Leeds, Eng., is in part of the twelfth century, in part of the fifteenth. MS. D is in the library of Sidney Sussex College, Cambridge. It is of the fifteenth century, and contains many rubrics not given in the other six MSS. The portion of MS. A used in this work is of the twelfth century. The portions from MS. D are noted.

³ The York Missal, p. 97, MS. D.

⁴ In the abbey church of Durham the host was inclosed in crystal, and set into the breast of the image of the Savior. Hone's *Ancient Mysteries*, p. 223, quoting from Davies's *Rites of the Cathedral of Durham*.

That is, the first of the three is used on Thursday, the second on Friday after the priest returns to the altar, and the third rests in the sepulchre.¹

¹ Parker's Glossary of Architecture gives under 'Sepulchre' the following: "A representation of the entombment of our Savior, set up in the Roman Catholic church at Easter on the north side of the chancel, near the altar; in this country previous to the Reformation, it was most commonly a wooden erection, and placed within a recess in the wall or upon a tomb, but several churches still contain permanent stone structures that were built for that purpose, some of which are very elaborate, and are ornamented with a variety of decorations, as at Navenby and Heckington, Lincolnshire; and Hawton, Nottinghamshire, all of which are beautiful specimens of the Decorated style: sepulchres of this kind also remain in the churches at Northwold, Norfolk; Holcombe Burnell, Southpool, and Woodleigh, Devonshire; and in several others. . . . The lower part generally contains representations of sleeping soldiers, intended for the Roman guard."

Britton's Redcliffe Church, p. 27, quoted by Parker:—

Item, That Maister Canynge hath deliver'd this 4th day of July, in the year of our Lord, 1470, to Maister Nicholas Petters, vicar of St. Mary Redcliffe: Moses Conterin, Philip Barthelmew, procurators of St. Mary Redcliffe, aforesaid: a new sepulchre well gilt with golde, and a civer thereto.

Item, An image of God Almighty rising out of the same sepulchre, with all the ordinance that 'longeth thereto, (that is to say) a lathe made of timber and the iron-work thereto.

Item, Thereto 'longeth Heaven, made of timber and stain'd clothes.

Item, Hell made of timber, and iron-work thereto, with Divels to the number of 13.

Item, 4 Knights armed, keeping the sepulchre, with their weapons in their hands; that is to say, 2 axes and 2 spears, with 2 pavés.

Item, 4 payr of Angels' wings for 4 Angels, made of timber and well painted.

Item, The Fadre, the Crowne and Visage, the ball with a Cross upon it, well gilt with fine gould.

Item, The Holy Ghosht coming out of Heaven into the sepulchre.

Item, Longeth to the 4 Angels 4 Chevelers.

Articles of Visitation, by Abp. Cranmer, 2 Ed. VI., quoted by Parker:—

Item, Whether they had upon Good Friday last past the sepulchres with their lights, having the Sacrament therein.

Test. Johan. de Ledes, 1379. Test. Ebor. 196, quoted by Parker:—

Lego duo tapeta rubea dietæ ecclesiæ meæ pro reparatione sepulchri in die parascues.

Accompts of S. Helen's, Abingdon. Archaeol. vol. 1, p. 16, quoted by Parker:—

A. D. 1558: Payde for making the Sepulture, 10s.

For peynting the same sepulture, 3s.

For stones, and other charges about it, 4s. 6d.

To the sexton for meat and drink, and watching the sepulture, according to custom, 22d.

Hone's Ancient Mysteries, p. 221, quoting the Beehive of the Romish Church, says: "Yea, and in some places, they make the grave in a hie place in the church where men must goe up manie steppes, which are decked with blacke cloth from above to beneath, and vpon euery steppe standeth a siluer candlesticke with a waxe candle burning in it, and there do walke souldiours in harness, as bright as Saint George, which keepe the grave, till the priests come and take him up: and then commeth sodenlie a flash of fire, wherewith they are all afraid and fall downe: and then vpstarts the man, and they begin to sing Alleluia, on all hands, and then the clock strikes eleuen."

IV.

THE DRAMA OF HOLY WEEK IN THE YORK LITURGY.

We turn now to the Easter service in the mediæval liturgies, and place the York liturgy in comparison with the continental order of service. An interesting situation is revealed. In the York Missal the traces of dramatic action are scattered, as in the modern liturgy, through the services of Easter, Easter Monday, and Easter Tuesday, not concentrated, as in the continental liturgies, in the service of Easter. In the Victimæ Paschali Laudes occurs :

Dic nobis, Maria ! quid vidisti in via ?
 Sepulchrum Christi viventis, et gloriam vidi resurgentis,
 Angelicos testes, sudarium et vestes.
 Surrexit Christus spes mea, præcedet vos in Galilæam.

This is repeated also on Monday and Tuesday. On Monday we find the verse preceding to be :

Angelus Domini descendit de cælo, et accedens revolvit lapidem, et sedebat super eum.

On Tuesday the verse is :

Surrexit Dominus de sepulchro, qui pro nobis pependit in ligno.

In the York Missal the Resurrection Drama also appears in a broken and disconnected condition. On Easter Sunday, after blessing the fire and the water, the clergy assume festal garments, but the Victimæ Paschali Laudes is not the Sequence for the day, so there is absolutely nothing of a dramatic nature in the Easter service. In FERIA II post Pascha, however, we find clear traces. Luke 24. 13-35, is read. The Offertorium gives :¹

Angelus Domini descendit de cælo, et dixit mulieribus : quem quæritis ? surrexit, sicut dixit, alleluia.

In FERIA III post Pascha appears :² as *Gradale*.

V. Angelus Domini descendit de cælo, et accedens revolvit lapidem, et sedebat super eum.

V. Respondens autem angelus dixit mulieribus : Quem quæritis ? Illæ autem dixerunt : Jesum Nazarenem.

Then follow the Victimæ Paschali Laudes, containing :

Dic nobis, Maria, quid vidisti in via ?
 Sepulchrum Christi viventis, et gloriam vidi resurgentis,
 Angelicos testes, sudarium et vestes.
 Surrexit Christus spes nostra, præcedet vos in Galilæam.
 Credendum est magis soli Mariæ veraci, quam Judæorum turbæ fallaci.
 Scimus Christum surrexisse a mortuis vere ; tu nobis, victor Rex, miserere.

¹ York Missal, p. 128.

² York Missal, p. 129.

How much acting accompanied this song it is impossible to state with certainty, but one may venture the supposition that a portion of the choir or certain priests sang the question: "Dic nobis, Maria, quid vidisti in via?" that the three following lines were sung by single voices personating the three Maries respectively, that the former singers then followed with the line beginning "Credendum," and that all joined in the last line. There is nothing in the text to indicate the method of rendering. The passage is in prose as given above, not in verse, as the passage given by Pollard¹ seems to be.

This ends the direct evidence from the York Missal, but not the indirect. There must have been more to this drama than that indicated in the text. In the Good Friday service the crucifix and host were placed in the sepulchre to await a resurrection on Easter, as we know from the continental liturgies. No account of this resurrection is given, and, as there is a distinct change in the service on Easter, when, after days of mourning vestures and lamentation,

Praelatus cum septem vel quinque Diaconibus dalmaticatis, et totidem Subdiaconibus tunicatis festive paratis, præcedentibus Cereferariis et duobus Thuriferis, introeat ad Altare,

I incline to the opinion that the Resurrection Play took place immediately before that action.

That the directions for the drama should be omitted is not strange, as in many churches, continental as well as English, the Play was regarded as foreign to the service and excluded from the Missal. Moreover, we have direct references to such plays in two places in the York Missal. On Christmas—Ad Missam in Gallicantu,² MS. D says:

Peractisque ibidem omnibus quæ juxta morem dicenda vel facienda sunt, incipiat Exeutor Officiis ad Altare Gloria in excelsis cum nota de angelis.

And for Ad Magnam Missam MS. D adds:³

Et peractis omnibus ibidem, quæ peragenda sunt, incipiat Sacerdos orationem.

These prove the recognized standing of such plays, though outside of the Missal, and also that the directions for them were not always inserted, as MS. D alone has them, the other MSS. being notably deficient in rubrics in many places. This closes the York testimony concerning these plays, and we pass to the continent, as I have not the Sarum Use at hand.

¹ Pollard, p. xv.

² York Missal, p. 14.

³ York Missal, p. 18.

V.

THE DRAMA OF HOLY WEEK IN EARLY CONTINENTAL LITURGIES.

The traces left in the Alemannic liturgy will serve to illustrate the dramatic features of the continental service.

Ordo in Parasceve:¹

& cruce salutata, & in suo loco reposita.

Ordo in Parasceve:²

Interim Sacerdos fumat viaticum, eatque ad sepulchrum cum incenso & candelis cantando R. *Agnus Dei Christus. Ecce quomodo moritur*, cum Versibus & repetitionibus, ponensque illud in sepulchrum incenset, & claudens illud cantet R. *Sepulto Domino*, cum Versu & repetitione, ponaturque cereus ardens ante sepulchrum. ✠

These extracts will suffice to show that the German churches were practically in accord with the English as regards the Burial Play.

The act of crucifixion we might suppose too painful a scene for realistic presentation in the service, and so it seems to have been in England, but on the continent it received a peculiar dramatic treatment. The lamentation on Good Friday for the death of Christ was, in Germany, Jerem. chap. i, sung with a touching melody.³ This was superseded by a lamentation of Mary of which we have examples in both Latin and German. There are many of these 'Marienklagen.' They were not all, however, designed for the Good Friday service. Some are addressed to Christ upon the cross; others show plainly by their content that they were sung by Mary in the Easter service, sometimes just before the Maries began their walk to the tomb, at other times on the way and leading up to the Resurrection proper. The dramatic development of the former was evidently suggested by the Biblical narrative. Mary addresses her Son and He replies. As to how the response was contrived we have no information.

Probably the first steps of this development have been lost, since the earliest form that we have is in metre and in a somewhat complicated stanza. From a Saint Blasien MS. of 1440 at Karlsruhe Mone gives:⁴

¹ Gerbertus, vol. 2, p. 204.

² Mone, p. 204.

³ Gerbertus, vol. 2, p. 235.

⁴ Mone, p. 42.

Planetus B. Mariæ virginis ad filium in cruce pendentem :

Virgo plorans filium
ductus ad supplicium :
Dic o rex humilium,
fili quid fecisti ?
quia gens incredula,
mordax velut vipera,
te traxit ad vincula
et crucem subisti.

This continues through thirteen stanzas. Then :

Responsio afflicti filii ad mœstissimam matrem.

This Responsio closes the song in five stanzas.

The next step of dramatic development is shown in a MS. of 1439, now in the library of Karlsruhe, but written in Florence.¹ The metre is more simple, but the lyrical dialogue has been greatly expanded. It begins :

Ante crucem virgo stabat,
Christi pœnas cogitabat,
totam se dilaniabat,
vultum lavat lacrimis,

and continues through eight stanzas, when Christ replies in four stanzas, Mary answering in three. Then, *Respondet crux Mariæ* in seven stanzas, Mary replies in three, and the cross closes the dialogue in four.²

Our next example passes from the language of the church to the tongue of the people. The MS. is judged to be of about 1430.³ I give it in full, as it is comparatively short, and yet contains all the distinctive features of the lamentation after it had passed into the vulgar tongue.⁴

¹ Mone, p. 37.

² Note.—Compare with these the "Stabat Mater: The Lamentation of the Blessed Virgin Mary, a Sequence or Prose, appointed, in the Roman Missal, to be sung between the Epistle and the Gospel, at High Mass, on the Friday in Passion Week, and the Third Sunday in September. The Poem, written towards the close of the thirteenth century by Jacobus de Benedictus, is one of the finest examples of mediæval Latin prose."—Grove's Dictionary of Music and Musicians s. v. Stabat Mater.

³ Note.—It should be borne in mind that most of these plays are older than the MSS. containing them. Nevertheless, the development in Germany seems to have been slower than elsewhere, and consequently many steps of development, elsewhere lost, have been preserved there.

⁴ Hoffman, vol. 2, p. 281.

Marie klage.*Plactus in magna sexta feria.**Primo Iohannes dicit :*

Hæret lieben liute überal
 Einen jæmerlichen schal.
 Maria ist herkomen
 Und hât leidigiu mære vernomen :
 Ir liebez kint sî gevangen
 Und an ein kriuze gehangen.

Maria dicit :

Johannes lieber vriunt mîn
 Daz dû sælec mîezest sîn,
 Wîse mich an die stat
 Dâ dû mîn kint gelâzen hâst.

Iohannes dicit demonstrando super. . . :

Maria sich an dîn kint,
 Daz die argen juden blint
 An ein kriuze habent geslagen :
 Des mûz ich dir helfen klagen.

Maria cantando procedit :

Owê owê des ganges des ich gân
 Mit jâmer und mit riuwen.
 Ich mac gesitzen noch gestân,
 Mîn leit wil sich verniuwen.

Iesus cantat :

Eli, lamma sabacthani, Deus
 meus ut quam dereliquisti me ?

*Judæi annectant clavos.**Maria cantat :*

Owê ich hære einen rûf :
 Daz ist mîn kint Jesus der mich
 beschûf,
 Daz vernim ich an der stimme.
 Ich hære die hemer klingen
 Und in sîn in angst und nôt.
 Owê und wærich vor im tôt !
 Owê ich gên wider oder vür,
 Ez trit ouch nieman vür die tür
 Der dise marter wende :
 Des windich mîne hende.
 Ich schrîe lût owê owê,
 Nu tætet mich und lât in gên.

Maria dicit :

Johannes lieber vriunt mîn,
 Nû gêwir zû der marter sîn,
 Und hilf mir klagen mîniu leit
 Diu mîn sendez herze treit.

Iohannes dicit:

Maria mûter reine,
Weinen muge wir beide,
Wan uns nieman troestet mêr :
Owê mir hiute und immermêr.

Maria cantat :

Sihestu wie er henget
Und wie daz blût rennet
Ûz sînem reinen lîbe ?

(Iesus dicit:)

Sich, mûter, sich ! Dîn kint
bin ich
Und daz jâmerlîchen hange.
Des sünders tôt ich nicht enwil,
Johanni dem bevilh ich dich.

Iohannes dicit ad Mariam :

Mûter lâz dîn trûren sîn,
Johannes sol wesen der sun dîn
Und dû diu mûter sîn.

Iesus ad Iohannem dicit :

Dû solt ir sun wesen,
Sô muget ir beide wol genesen.

Maria cantat :

Owê owê ! weinen was mir unbekant,
Sît ich mûter was genant
Und doch mannes âne.
Owê ! nû ist ze weinen mir geschehen,
Sint ich sînen tôt mûz sehen
Den ich âne smerzen gar
Mûter unde meit gebar.

[Here follow some illegible Latin verses
of which the following is the trans-
lation] :

Sun Johannes unde neve mîn,
Dû solt klagen mîn leit und daz dîn.
Sîder unz ze leid ist geschehn,
Herzeleide mûeze wir jehn.
Owê ach und jamers zît
Diu an sînem tode lît,
Dâvon mir ein scharpfez swert
Mîne sêle gar durchvert.

Iohannes :

O Maria stella maris
ôur tam grave contristaris ? etc.

A still further development is shown by a plaint of the thirteenth century—the MS. is, however, of the fifteenth century—which is



also given by Hoffmann.¹ It begins 'Incipit planctus Mariæ virginis,' contains 406 verses, and is accompanied, as is the case with nearly all German Marienklagen, with the music. The stage directions are in Latin, and the first song that John and Peter sing is in prose Latin. The Savior also says : "Mulier, ecce filius tuus," and "Ecce mater tua" in speaking to John, but follows each with four verses in German. The actors are Mary, John, Peter, and the crucified Savior. The passage of time is shown, and is evidently intended to cover the time that Mary was by the cross in the Biblical narrative.

As kindred to the above complaints we can best consider here the lamentations that precede the Resurrection Play on Easter. In a parchment MS. in the cloister of Lichtenthal near Baden, in a handwriting of the thirteenth century, is found what Mone² declares to be the oldest German piece that he has discovered. It begins :

[MARIA:]

Awe der iemerleichen clag,
 di ich muter eine trag
 von dez totez wanne !
 weinen waz mir unbechant,
 sit ich muter was genant,
 und doch mannes anne :
 nu ist ze beinen mir geschehen,
 seit ich deinen tot muz sehen.
 aube der laiden merre !
 wâinen, clagen muz ich han,
 sam der freude ni gewan,
 von meinez hertzen swerre.
 aube tot,
 diseu not
 maht du mir wol enden,
 wilt du von dir
 her zu mir
 deinnen poten senden.

Three stanzas of the same construction follow, then John speaks one stanza, then Mary and John continue the conversation through six stanzas of a different construction. The preparation for the walk to the sepulchre is announced by six Latin verses, and Mary's decision to visit the sepulchre is given in the words :

Sed eamus et ad ejus
 properemus tumulum,
 si dileximus viventem,³
 diligamus mortuum.

¹ Hoffmann, vol. 2, p. 260.

² Mone, p. 27 and p. 31.

³ See pp. 149, 157.

This leads us to the consideration of the songs, not lamentations, which sometimes contained the Easter Play in embryo, and sometimes were introductory to it. Of the former we have this of the fourteenth century :¹

Duo pueri [MARIA MAGDALENA] :

Certe multis argumentis
vidi signa resurgentis.

Chorus :

Dic nobis Maria²,
quid vidisti in via ?

Duo pueri [MARIA M.] :³

Sepulchrum Christi viventis
et gloriam vidi resurgentis,
angelicos testes,

sudarium et vestes.
surrexit Christus spes mea,
præcedet suos in Galilæa.

[*Chorus :*]

Credendum est magis soli Mariæ veraci
quam Judæorum turbæ fallaci ;
scimus Christum surrexisse
ex mortuis vere ;
tu nobis, victor rex, miserere.

Of the second the introductory songs in the plays below, given as Milchsack's fourth group,⁴ will serve as examples. Our consideration of these lyrics may well close with Hoffman's 'Ludus de Nocte Pasche,' which I give in full, as showing what parts in the transition the Latin and vernacular tongues held respectively in these plays.⁵

INCIPIE LUDUS DE NOCTE PASCHE.

Prima Maria cantat :

Heu nobis internas mentes⁶
quanti pulsant gemitus
pro nostro consolatore,
quo privantur miseri,
quem crudelis Iudæorum
morti dedit populus.
Iam percusso heu pastore
oves errant misere,
sic magistro discedente
turbantur discipuli
atque nos absente eo
dolor tenet nimius.
Sed eamus et ad eius
properemus tumultum.
si dileximus viventem,⁷
diligamus et mortuum
et ungamus corpus eius
oleo sanctissimo.

¹ Mone, p. 22.

² Compare (p. 26) with the Victimæ Paschali Laudes of the York Missal.

³ Almost all important MSS. of the liturgical drama are monastic MSS. (Les Mystères, par L. Petit de Julleville, p. 21, referring to M. L. Gautier). Consequently, in those monasteries where women were not permitted to enter, the Maries were represented by boys.

⁴ See p. 156.

⁵ Hoffmann, 2, 272.

⁶ See p. 157.

⁷ See pp. 148, 157.

Prima Maria dicit Rhythmum :

Owê, owê der vil grimmigen hant
 Diu aller werlde heilant
 An daz kriuze hât gehangen.
 Er hât durch den menschen die martel enpfangen:
 Owê ir iuden, welch ein grôz mort!
 Wie michel und ungehört
 Versteinet iuwer herzen sint!
 Ir hât gekriuzeget die mûter als daz kint

Secunda Maria dicit R :

Owê! wie gar irredlichen ez stêt
 Dâ daz vihe âne hirten gêt:
 Daz mac man wol beschouwen
 An uns drin armen vrouwen.

Tertia Maria dicit :

Swester, wir wellen vor dem tage
 Gên zû unsers meisters grabe,
 Und bestrichen sîne wunden almitalle
 Mit tiurer gûter salben.
 Ich hân ein altgesprochen wort
 Von minen eltern dicke gehôrt,
 Daz diu triuwe sî allerbest
 Die man nâch dem tôde leist.
 Wære uns nû liep der lîp sîn,
 Des solden wir im tûn gûten schîn.

Et in momento procedentes ad sepulchrum, simul cantando Angelis :

Sed eamus unguentum emere,
 cum quo possimus unguere
 corpus domini sacratum.
 Quis revolvat nobis ab ostio lapidem,¹
 quem tegere sanctum cernimus sepulchrum ?

Tertia Maria dicit Rhythmum :

Wer will uns von diseme grabe
 Den stein heben herabe ?
 Daz got darumbe sî sîn lôn
 Unde helfe in in den obersten trôn.

Tunc Angeli cantant :

Quem quæritis, o tremulæ mulieres in hoc tumulto plorantes ?²

Et primus Angelus dicit R :

Wen sûchet ir drî vrouwen
 Mit jâmer unde mit rouwen
 Also vrû in diseme grabe
 An diseme ôsterlîchen tage ?

¹ See p. 153.² See p. 153.

Marice simul cantant Angelis :

Iesum Nazarenum crucifixum quærimus.

Tertia Maria dicit R :

Wir sûchen Iesum unsern trôst,
Der uns von sünden hat erlöst.

Angeli simul cantant :

Non est hic quem quæritis, sed cito euntes nunciate discipulis eius et Petro quia surrexit Iesus.

Secundus Angelus dicit R :

Er enist niht hie, er ist ûferstanden
Und is zû Galilea gegangen:
Daz saget sinen jungern unde Petro,
Darumbe diu ganze werlde sol wesen vrô.

Et tunc Angeli simul cantant :

Venite¹ et videte locum ubi positus erat dominus, alleluia alleluia!

Sehet in daz grap
Dâ got selber in lac.
Er ist ûferstanden
Und ist zû Galilea gegangen.

Tunc Marice recedendo simul cantant :²

Ad monumentum venimus gementes,
angelos domini sedentes
vidimus et dicentes
quia surrexit Iesus.
Wir wâren gegangen zû dem grabe,
Dâ was der stein gehaben herabe.
Dô sprachen zwêne engel klâr
Genzlfichen vûrwâr:
Iesus ist erstanden
Von des tôdes banden,
Und sprâchen: saget Petro und den jungern sîn,
Daz er von dem tôde erstanden sî.

This drama continues with the incident of the Savior's appearing as the gardener³ to Mary, and closes with the Victimæ Paschali.⁴

A most notable fusion of the Latin with the vernacular, in this case Provençal, is given by Wright,⁵ the 'Mysterium Fatuarum Virginum.' It is of the twelfth century probably, though judged by Raynouard to be of the eleventh. A comparison of the German and Provençal plays will be profitable. Both begin in Latin. The important and stereotyped expressions in each are in Latin, and in

¹ See p. 161.

² See p. 158.

³ See p. 160.

⁴ See p. 160.

⁵ Wright, p. xlii and p. 57.

each there is an attempt to translate such sentences for the people. Thus we have in the above, "Quis revolvēt nobis ab ostio," etc., followed by "Wer wil uns von diseme grabe," etc.; "Quem quærītis," etc., with "Wen sūchet ir drī vrouwen;" while in the second in Christ's speech:

Amen, dico, vos ignosco,
 Nam caretis lumine,
 Quod qui perdunt procul pergunt
 Hujus aulæ limine.

Alet, chaitivas! alet, malaureas!
 A tot jors mais vos so penas livreas,
 En enfern ora seret meneias.

In the former there is a feeling that violent lamentation as lacking dignity, and speech of common things, can be expressed in the vulgar tongue; in the second the speech of inferior characters, in this case the merchants and Gabriel, is in the vernacular.

VI.

THE RISE OF THE RESURRECTION PLAY.

We will now return to the liturgy and trace the Resurrection Play, but, as an aid toward the better comprehension of its intimate connection at first with the church service, I will cite somewhat in detail the Easter service¹ as given in the Alemannic liturgy in the service 'In die sacro Resurrectionis Dominicæ,' omitting the first part.

Ad tertium psalmum induit se Levita, qui primam Evangelicum lectionem lecturus est, Stola & Dalmatica, & accedens ad analogium, in quo liber matutinalis est repositus, præcedantque eum tres Conversi, unus portans incensum, alii duo candelabra, & stent iuxta eum. Deinde Diaconus petat benedictionem dicens, *iube Domne*, & pronuntians Evangelium secundum Marcum dicens: *Lectio S. Evangelii secundum Marcum. In illo tempore Maria Magdalena, cumque dixit, Et reliqua, tunc recedant Conversi ab eo, & incendant omnia lumina. Interim induant illi se, qui debent primum Responsorium cantare, cappis, & incensent principale Altare: venientes autem ad Fratres in superioribus locis debent sedere usque in finem lectionis; Tunc accipiant duo Conversi thuribula ad ipsos, & offerant incensum omnibus, qui sunt in utroque choro. Post lectionem incipiant Angelus Dominicum & Gloria. Similiter faciendum est ad secundam & tertiam lectionem atque Responsoria. Qui secundam lectionem*

¹ Gerbertus, vol. 2, pp. 236, 237.

legit, debet remanere in sola Alba: Similiter qui tertiam legit, faciat, excepto Abbate, qui debet legere in cappa. Tertium vero Responsorium cantent tres Cantores in cappis, quorum duo incensent Altare, ut supra scriptum est. R. *Dum transissent*, quod post *Gloria Patri* reincipiendum est. Interim duo Sacerdotes se cappis induunt summentes duo thuribula, & humeraria in capita ponent, intrantes chorum, paulatim euntes versus sepulchrum, voce medioeri cantantes, *Quis revolvat nobis lapidem*. Quos Diaconus, qui debet esse retro sepulchrum, interroget psallendo, *Quem queritis*, deinde illi, *Iesum Nazarenum*. Quibus Diaconus respondet, *Non est hic*, mox incensent sepulchrum,¹ & dicente Diacono, *Ite, nuntiate*, vertent se ad chorum remanentes super gradum, & cantent, *Surrexit Dominus de sepulchro* usque in finem. Finita antiphona Dominus Abbas incipiat *Te Deum laudamus* in medio ante Altare, moxque campanæ sonentur in angularibus. Cum cantatur *Per singulos dies* sonentur omnia signa in choro.

This was the service of the fourteenth century at St. Blasien in the Black Forest.² Martene³ gives an Easter service in which the actors at the sepulchre are increased to four:

Quorum unus alba indutus acsi ad aliud agendum ingreditur, atque latenter sepulchri locum adeat: ibique, manu tenens palmam quietus sedeat.

This one personates the angel, while the remaining three represent the three Maries.

The twenty-eight published Plays of the Resurrection Milchsack has exploited so successfully as to leave little work for a successor. He divides them according to development into four groups, of which we will consider in a somewhat condensed form the first and fourth.

To the first-class five plays are assigned—

- A. Einsiedeln play of the twelfth century;
- B. Paris play of the eleventh century;
- C. St. Martial, Limoges, of the eleventh century, forming an introduction to the *Mysterium⁴ Fatuarum Virginum*;
- D. St. Blasien in Schwarzwalde, given above;
- E. Dunstanus, Concordia, published by Martene.

These plays, omitting introductions, can be tabulated as follows:⁵

¹ Mone gives p. 8, a cut of the three Maries censing the sepulchre and the angel; the sketch he found at the beginning of the Good Friday choirsongs in a MS. at Karlsrube.

² Milchsack, p. 24, note.—Milchsack gives a full bibliography of the published Latin liturgical plays.

³ Milchsack, p. 38.

⁴ See p. 151.

⁵ Milchsack, p. 38.

A.	B.	C.	D.	E.
Einsiedeln I, XII Cent.	Paris, XI Cent.	St. Martial, XI Cent.	St. Blasien, XIV Cent.	Martene, ? Cent. x Cent
			Quis revolvat nobis lapidem ? quos ' DIACONUS, qui debet esse retro sepulchrum inter- roget psallendo : Quem quæritis ?	
ANGELUS dicit :	[ANGELI :]	[ANGELUS :]		
Quem quæritis in sepulchro, o christicolæ ?	" 1 " "	" " "		"
MULIERES re- spondent :	[MULIERES :]	[MULIERES :]	deinde ILLI [MULIERES :]	Quo decantato fine tenus re- spondeant hi TRES [MULIE- RES] uno ore :
Jesum Nazare- num ² crucifixum, o cœlicola !	" " cœlicolæ !	" " cœlicolæ !	Jesum Nazarenum !	"
ANGELUS dicit :	[ANGELI :]	[ANGELUS :]	Quibus DIACONUS respondet :	Quibus ILLE :
Non est hic, surrexit sicut prædixerat :	" " ipse dixit ;	" " prædixerat :	Non est hic !	" surrexit sicut prædixerat :
			Mox incensent sepulchrum et dicente DIACONO :	
Ite, nuntiate quia surrexit de sepulchro.	ite, nuntiate quia surrexit	ite, nuntiate discipulis eius quia præcedet vos in Galilæam.	ite, nuntiate.	ite, nuntiate quia surrexit a mortuis. Cuius mis- sionis voce ver- tant se ILLI TRES ad chorum di- centes: Alle- luia ! Surrexit dominus !

A and B close here; C adds, "Vere surrexit dominus de sepulchro cum gloria. Alleluia!" In D the women return to the choir and there sing, "Surrexit," etc., and afterwards "Te Deum laudamus,"

¹ Read ditto marks from left to right.

² See p. 151.

as given above.¹ In E the people are invited² to come and see the place where the Lord was laid. The sepulchre is found to contain grave clothes, which are taken out and shown to the clergy, who forthwith sing "Surrexit," etc. The linen is laid upon the altar, and the Prior begins "Te deum laudamus."

An examination of these plays seems to lead irresistibly to one of two conclusions; either they spring from a common source in the liturgy, or they are copies, with modifications, of one original. The three possible sources in the Gospels are:³—

Matth. 28. 5-7.

5. Respondens autem angelus dixit mulieribus Nolite timere vos: scio enim quod Iesum qui crucifixus est queritis:

6. Non est hic, surrexit enim sicut dixit: venite et videte locum ubi positus erat dominus.

7. Et cito euntes dicite discipulis eius quia surrexit, et ecce praecedit vos in Galilæam: ibi eum videbitis. Ecce praedixi vobis.

Mark 16. 6-7.

6. Qui [sc. angelus] dicit illis: Nolite expavescere: Iesum queritis Nazarenum crucifixum: surrexit, non est hic: ecce locus ubi posuerunt eum.

7. Sed ite dicite discipulis eius et Petro quia praecedit vos in Galilæam: ibi eum videbitis, sicut dixit vobis.

Luke 24. 5-8.

5. Cum timerent autem et declinarent vultum in terram, dixerunt ad illas: Quid queritis viventem cum mortuis?

6. Non est hic, sed surrexit: recordamini qualiter locutus est vobis, cum adhuc in Galilæa esset.

7. Dicens quia oportet filium hominis tradi in manus hominum peccatorum et crucifigi et die tertia resurgere.

The question now arises as to what part of the service contained the germ of these earliest dramas. Mone⁴ believes that they sprang from the responses and antiphons, as the most dramatic portion of the liturgy; Wilken,⁵ that they arose from the first part of the Victimæ Paschali with the Responsorium belonging thereto, influenced, however, by the Gospel text. Milchsack,⁶ after a close analysis, bases all the plays upon Matthew and Mark. I do not know that it would betoken any unaccountable originality, if some priest, thoroughly familiar with the Gospel passages and with the Victimæ Paschali with its introductory verse and response, should have borne all in mind while shaping the Easter drama. If, as Milchsack⁷ thinks, we have here actually the first step in the development of the drama, it is a sufficiently serious departure from the ritual to imply conscious authorship rather than the slow, unconscious modification of an existing custom; and this, as it seems to

¹ See p. 153.

² See p. 151.

³ Milchsack, p. 30.

⁴ Mone 1, 5.

⁵ Wilken, p. 68 ff.

⁶ Milchsack, p. 34.

⁷ Milchsack, p. 34.

Wt d
stem
head
Tropo

me, is an additional argument for the author's resting his invention upon all the recognized dramatic elements, suitable for his purpose, in the liturgy. Furthermore, this view is reinforced by the fact that the play did not have a fixed position in the Easter service, as it would have had if developed from one only of the elements of the service. Durandus says, as quoted by Milchsack :¹

Quidam etiam faciunt [sc. repræsentationem] ad missam, cum dicitur sequentia illa *Victime paschali*, cum dicitur versus *Dic nobis et sequentes*.

These five earliest plays, to which the one from Utrecht may be added, are found in Germany and France, and the question of independent derivation from the church service, or of a common source in some one earliest drama, becomes a matter of great interest. If, as Milchsack² believes, they spring from the New Testament directly, the fact that they rest upon Matthew and Mark, and none of them upon Luke, distinctively argues for a single author. When we consider the many methods of possible dramatic development of the common material, and note the evident agreement, it seems difficult to dispute Milchsack's conclusion³ that they sprang from one form, the work of one author. These remains are not of the same date. There is no lack of time within which the inmates of one cloister, proud of its author and play, could carry the drama in memory or in MS. in their visits to even distant cloisters. There is, apparently, no valid objection to the theory, however reasonable an independent development may seem to us.

VII.

THE DEVELOPED RESURRECTION PLAY.

For comparison with the above plays we will take two plays of Milchsack's fourth group.⁴ Evidences that the redactor used Luke are present in these plays, which are the most elaborate of the Latin liturgical plays of the resurrection. This group contains, according to Milchsack's classification, twelve plays. We will compare one of Germany found in a MS. of the thirteenth century, at Einsiedeln—the entire text is accompanied by music notes⁵—and one of France found in the Orleans MS. of the thirteenth century.⁶

¹ Milchsack, p. 86.

⁴ Milchsack, p. 64.

² Milchsack, p. 34.

⁵ Mone, vol. 1, pp. 15-19.

³ Milchsack, p. 34.

⁶ Wright, pp. 32-36.

Einsiedeln, XIII century.

IN RESURRECTIONE DOMINI.

Ad visitandum dominicam sepulturam.

UNA DE MULIERIBUS cantet sola :

Heu nobis, internas mentes¹
 quanti pulsant gemitus
 pro nostro consolatore,
 quo privamur miseræ,
 quem crudelis Iudæorum
 morti dedit populus.

ALTERA item sola :

Iam percusso ceu pastore,
 oves errant miseræ :
 sic, magistro decedente,
 turbantur discipuli,
 atque nos, eo absente,
 dolor tenet nimius.

MARIA MAGDALENA :

Sed eamus et ad eius
 properemus tumulum ;
 si dileximus viventem,²
 diligamus mortuum.

Orléans, XIII century.

*Ad faciendam similitudinem dominici
 sepulchri primum procedant TRES FRA-
 TRES, præparati et vestiti IN SIMILITUD-
 INEM TRIUM MARIARUM, pedetentim et,
 quasi tristes alternantes, hos versus can-
 tantes :*

PRIMA earum dicat :

Heu ! pius pastor occidit,
 Quem culpa nulla infecit !
 O res plangenda !

SECUNDA :

Heu ! verus pastor obiit,
 Qui vitam sanctis contulit !
 O mors lugenda !

TERTIA :

Heu ! nequam gens Judaica !
 Quam dira frendens vesania !
 Plebs execranda !

PRIMA :

Cur nece pium impia
 Dampnasti Jhesum invida ?
 O ira nefanda !

SECUNDA :

Quid iustus hi c̃ promeruit
 Quod crucifigi debuit ?
 O gens dampnanda !

TERTIA :

Heu, quid agamus, miseræ,
 Dulci magistro orbatae ?
 Heu ! sors lacrymanda !

PRIMA :

Eamus ergo propere,
 Quod solum quimus facere,
 Mente devota.

SECUNDA :

Condimentis aromatum
 Ungamus corpus sanctissimum ;
 Quo pretiosa.

TERTIA :

Nardi vetet commixtio,
 Ne putrescat in tumulo
 Caro beata.

¹ See p. 149.² See p. 148.

Einsiedeln, XIII century.

Simul cantent [sc. MARIAE:]

Quis revolvat nobis lapidem
ab ostio monumenti?¹

ANGELUS:

Quem vos quem [quæritis]
flentes?²

MULIERES:

Nos Jhesum Christum!

Item ANGELUS:

Non est hic vere!

MULIERES *revertentes cantent ad chorum*:³
Ad monumentum venimus gementes,
angelum domini sedentem vidimus et
dicentem quia surrexit Jhesus.

Orléans, XIII century.

Cum autem venerint in chorum, eant ad monumentum quasi quærentes et cantantes omnes [sc. MARIAE] *simul hunc versum.* Sed nequimus hoc patere sine adiutorio; quisnam saxum hoc revolvat ab monumento ostio?

Quibus respondeat ANGELUS, sedens foris ad caput sepulchri, vestitus alba deaurata, mitra tectus caput, etsi deinfulatus, palmam in sinistra, ramum candelarum plenum tenens in manu dextra, et dicat moderata et admodum gravi voce:

Quem quæritis in sepulchro, o
christicolæ?

MULIERES:

Jesum Nazarenum crucifixum, o
cœlicola!

Quibus respondeat ANGELUS:

Quid, christicolæ, viventem quæritis
cum mortuis?

Non est hic, sed surrexit, prædixit ut
discipulis.

Mementote quid iam vobis locutus est
Galilæa,

Quod Christum oportebat pati, atque
die tertia

Resurgere cum gloria.

MULIERES *conversæ ad populum cantent:*
Ad monumentum domini venimus gementes, angelum dei sedentem vidimus et dicentem quod surrexit a morte.

Post hæc MARIA MAGDALENA, relictis duabus aliis, accedat ad sepulchrum, in quod sæpe aspiciens dicat:

Heu! dolor! heu! quam dira doloris angustia!

Quod dilecti sum orbata magistri præsentia;

Heu! quis corpus tam dilectum sustulit
e tumulto?

Deinde pergat velociter ad illos, qui in similitudine Petri et Johannis præstare debent erecti, stansque ante eos quasi

¹ See p. 150.

² See p. 150.

³ See p. 151.

Einsiedeln, XIII century.

Orléans, XIII century.

tristis, dicat [MARIA MAGDALENA:]

Tulerunt Dominum meum,
Et nescio ubi posuerunt eum,
Et monumentum vacuum est inventum,
Et sudarium cum sindone repositum.

*Illi autem, hoc audientes, pergant ad
sepulcrum ac si currentes, sed junior,
sanctus Iohannes, perveniens stet extra
sepulchrum; senior vero, sanctus Petrus,
sequens eum, statim intret; postquam
et Iohannes intret; cum inde exierint,
IOHANNES dicat:*

Miranda sunt, quæ vidimus!

An furtim sublatus est dominus.

Cui PETRUS:

Imo, ut prædixit vivus,
Surrexit, credo, Dominus.

IOHANNES:

Sed cur liquit in sepulcro
Sudarium cum linteo?

PETRUS:

Ista, quia resurgenti
Non erant necessaria,
Imo resurrectionis
Restant hæc indicia.

*Illis autem abeuntibus, accedat MARIA
ad sepulcrum et prius dicat:*

Heu! dolor! heu! quam dira doloris
augustia!

Quod dilecti sum orbata magistri præ-
sentia!

Heu! Quis corpus tam dilectum sustulit
e tumulto?

*Quam alloquantur DUO ANGELI, sedentes
infra sepulcrum, dicentes:*

Mulier, quid ploras?

MARIA:

Quia tulerunt dominum meum,
Et nescio ubi posuerunt eum.

ANGELUS:

Noli flere, Maria; surrexit dominus.
Alleluia!

MARIA:

Ardens est cor meum desiderio
Videre dominum meum;
Quæro et non invenio
Ubi posuerunt eum.

Alleluia!

Einsiedeln, XIII century.

Orléans, XIII century.

MULIERES, *vertentes se ad personam Petri apostoli, omnes cantent :*

En angeli aspectum vidimus
et responsum eius audivimus,
qui testatur dominum vivere ;
sic oportet te, Symon, credere.

MARIA MAGDALENA *sola cantet hos tres versus :*

Cum venissem ungere mortuum,
monumentum inveni vacuum ;
heu, nescio locum discernere,
ubi possim magistrum quærere.

Dolor crescit, tremunt præcordia
de magistri pii absentia,
qui sanavit me plenam vitiis
pulsis a me septem dæmoniis.

En lapis est vere depositus,
qui fuerat in signum positus ;
munierant locum militibus :
locus vacat, illis absentibus.

CHORUS :

Una [autem] sabbati [Maria
Magdalene venit mane, cum adhuc
tenebræ essent, ad
monumentum, et vidit lapidem
sublatum a monumento.]

*Mulieres recurrentes iterum ad sepul-
turam nichil dicant.* MARIA MAGDA-
LENA *quærendo circumquaque cantet :*
Victimæ Paschali¹ etc. usque: Dic
nobis.

DOMINICA PERSONA, *subito Mariæ Mag-
dalene apparens, dicat :*²

Mulier, quid ploras ? quem quæris ?

MARIA *respondeat :*

Domine, si tu sustulisti eum, dicito
michi, ubi posuisti eum, quod ego eum
tollam. Alleluia ! Alleluia !

Interitu veniat QUIDAM PRAEPARATUS IN
SIMILITUDINEM HORTULANI, *stansque ad
caput sepulchri dicat :*²

Mulier, quid ploras ? quem quæris ?

MARIA :

Domine, si tu sustulisti eum, dicito mihi,
ubi posuisti eum, et ego eum tollam.

DOMINICA PERSONA *iterum ad eam :*

Maria ! Maria ! Maria !

ILLA *prociens dicat :*

Rabbi ! (quod dicitur, Magister).

Et ILLE :

Maria !

Atque procidens ad pedes eius MARIA
dicat :

Rabboni !

¹ See p. 151.

² See p. 151.

Einsiedeln, XIII century.

DOMINUS *ab ea paululum divertens dicat*: At ILLE *subtrahat se, et quasi tactum eius devitans, dicat*:

Noli me tangere; nondum enim ascendi ad Patrem meum. Alleluia! Alleluia! Noli me tangere: nondum enim ascendi ad Patrem meum et Patrem vestrum, Dominum meum et Dominum vestrum.

DOMINICA PERSONA *stans cantet*:

Prima quidem suffragia
stola tulit carnalia,
exhibendo communia
se per naturæ munia.

MARIA *adorans in terra cantet*:

Sancte deus!

DOMINICA PERSONA:

Hæc (est) priori dissimilis,
hæc est incorruptibilis,
quæ dum fuit passibilis,
iam non erit solubilis.

MARIA *eodem modo quo primus*:

Sancte fortis.

DOMINUS *iterum ibidem stans dicat*:

Ergo noli me tangere,
nec ultra velis plangere,
quem mox in puro sidere
cernes ad patrem scandere.

MARIA, *ut supra*:

Sancte immortalis, miserere nobis!

Item DOMINUS *ad eam*:

Nunc ignaros huius rei
fratres certos reddes mei:
Galilæam, dic, ut eant,
et me viventem videant.

Orléans, XIII century.

Sic discedat hortulanus, MARIA vero conversa ad populum dicat:

Congratulamini michi omnes qui diligitis Dominum, quia quem quærebam apparuit michi et, dum flerem ad monumentum, vidi Dominum meum. Alleluia! Tunc DUO ANGELI exeant ad ostium sepulchri, ita ut appareant foris, et dicant:

Venite¹ et videte locum, ubi positus erat dominus. Alleluia!

Nolite timere vos;

Vultum tristem iam mutate,

Iesum vivum nuntiate,

Galilæam iam adite,

Si placet videre, festinate.

Cito euntes dicite discipulis, quod Surrexit Dominus. Alleluia!

¹ See p. 151.

Einsiedeln, XIII century.

MARIA, *reliquis comitantibus, ad chorum sola dicat*:

Surrexit enim, sicut [dixit Dominus, præcedit vos in Galilæam, alleluia! ibi eum videbitis. Alleluia!]

CHORUS *ad eam*:

Dic nobis, Maria, [quid vidisti in via?]

IPSA *ad chorum*:

Sepulchrum Christi cum r. [sc. viventis et gloriam vidi resurgentis;¹ Angelicos testes, sudarium et vestes; Surrexit Christus spes mea, præcedet suos in Galilæa.]

CHORUS:

Credendum est [magis soli Mariæ veraci, quam Iudæorum turbæ fallaci.] Scimus, Christum [surrexisse a mortuis vere; tu nobis, victor rex, miserere!]

Item CHORUS:

Currebant duo simul [et ille alius discipulus præcucurrit citius Petro et venit primus ad monumentum].

Interea cum mulieribus PETRUS et IOHANNES *curret, et Iohannes præcurrens expectet Petrum, et nichil inveniendes revertantur melodiam cantantes*: Ergo die ista exultemus, [qua nobis viam vitæ resurgens patefecit Jesus]. Astra, solum, mare [iocundentur et cuncti gratulentur in coelis. Spiritales chori trinitati].

Orléans, XIII century.

Tunc MULIERES, *discedentes a sepulchro, dicant ad plebem*:

Surrexit Dominus de sepulchro, Qui pro nobis pependit in ligno. Alleluia!

Hoc facto, expandant [sc. MULIERES] *sin-*
donem, dicentes ad plebem:

Cernite vos, socii, sunt corporis ista beati
Linea, quæ vacuo iacuerere relicta sepulcro.

Postea ponant sindonem super altare, atque revertentes alternent hos versus.

PRIMA [sc. MARIA MAGDALENA] *dicat*:
Resurrexit hodie Deus Deorum!

SECUNDA [MARIA JACOBI]:
Frustra signas lapidem, plebs Iudæorum.

TERTIA [MARIA SALOME]:
Iungere iam populo christianorum.
Item PRIMA [MARIA MAGDALENA] *dicat*:
Resurrexit hodie rex angelorum.

¹ See p. 149.

Einsiedeln, XIII century.

Orléans, XIII century.

SECUNDA [MARIA JACOBI]:

Ducitur de tenebris turba piorum.

TERTIA [MARIA SALOME]:

Reseratur aditus regni cœlorum!

*Interea is, qui ante fuit Hortulanus,
in similitudinem DOMINI veniat dalmat-
icatus candida dalmatica, candida in-
fula infulatus, phylacteria pretiosa in
capite, crucem cum labaro in dextra,
textum auro paratorium in sinistra
habens, et dicat mulieribus:*

*Nolito timere vos: ito, nunciate fratri-
bus meis, ut eant in Galilæam: ibi me
videbunt, sicut prædixi eis.*

CHORUS:

Alleluia, resurrexit hodie dominus!

*Quo finito, dicant OMNES [MARIE]
insimul:*

Leo fortis, Christus, filius dei!

CHORUS *alta voce*:

Te Deum laudamus!

Et CHORUS dicat:

Te Deum laudamus!

We note the following extensions in E and O, as shown by comparison with Group I:

- a. The song during the progress to the tomb. A song, but of very different character, introduces A only in Group I.
- b. Situation of replying angel in O, "foris ad caput sepulchri," while in D, Group I, "debet esse retro sepulchrum."
- c. In O, "Why do you seek the living among the dead?"—an extension from Luke 24. 5.
- d. In O, the lines beginning, "Mementote," etc.
- e. In E and O, the short song of the women.
- f. In O, the episode of Mary Magdalene's lamentation.
- g. In O, the running of Peter and John, their entering the tomb, and the discussion of the meaning of their discovery. Note that the running in E is out of place and lacks dramatic motive.

¹ The position is significant. In Mont St. Michel it is 'super altare;' in Rouen, 'ante sepulchrum;' in Sens, 'Puer, in vestitu angelico sedens super pulpitem a cornu altaris sinistro.' Therefore in these French plays is recorded the appearance of a stage or platform for the church play.

- h. In O, Mary's return and lamentation.
- i. In O, Mary's seeing the two angels in the tomb and their conversation.
- j. In E, the turning of the women to Peter, and Mary's song in three stanzas.
- k. In E, the use of *Victimæ Paschali*.
- l. In E and O, the appearance of the Savior to Mary.
- m. In E, the Savior's song.
- n. In O, the angel's invitation to view the sepulchre, the display of linen with, later, the placing of it upon the altar.
- o. In E, the use of the remainder of *Victimæ Paschali*.
- p. In E, the running of Peter, John, and the women.
- q. The chorus in E, the part song in O.
- r. In O, the return of the Savior to speak to the audience, at which time he speaks the part assigned to the priest in Group I.
- s. In E and O, the close with the *Te Deum*.

The redactor whose work we have in the Orleans play has sought additional material, portions of points f, g, i, and l, which has greatly improved his play, in St. John, Chap. 20. The author of E has drawn but little from this, the most dramatic account of the incident; he seems, however, to have found p in Luke [24. 12], which may account for its undramatic position in the play.

A comparison of E and O reveals instantly certain characteristic differences. Peter and John's dialogue after entering the tomb, included in g, and Mary Magdalene's conversation with the angels, point i, are wholly lacking in E. The higher dramatic character of O is evident not only in points g and i, since Mary's action in f and h is for dramatic effect. The part song in a, the use of the grave clothes in n, and the return of the Savior in r, all improve the dramatic quality of the play. E as plainly shows a desire for lyrical features. The song in a, e, and especially in j, together with the somewhat cumbersome device for using the two parts of the *Victimæ Paschali*, sufficiently demonstrate the lyrical tendency. It may be added here that the other French plays of this group agree so closely with O as to argue a common origin, but the German, while not agreeing so closely with E, still show evidently the lyrical drift.

This lyrical tendency becomes more evident if we compare E with the *Ludus de Nocte Pasche*,¹ into which the vernacular is

¹ See p. 149.

finding its way. The introductory song is the same, but extended in I, and repeated in part in the vulgar tongue. The two angels who greet the Maries in I are evidently an innovation to render it possible for one to sing in German the substance of the Latin previously sung by the two.

Furthermore, we note that E and I agree in omitting f, g, i, and l, of O. The divergence of the German plays from the French has evidently taken place, and we have followed the course of the Burial and Resurrection group until we have found the plays on an independent footing, shaping themselves in accordance with the national spirit, and admitting largely the language of the people. We will now turn to our second group, the plays that cluster about the infancy of Jesus.

VIII.

THE GENESIS OF CHRISTMAS.

The development of the Christmas plays is so directly dependent upon the genesis of Christmas itself that we must glance once more at the customs of the early church.

The Syrian Gnostics of the third century celebrated the union of God and man as taking place in Jesus at His baptism, which they placed on Jan. 6th.¹ The orthodox adopted this as the feast of baptism, or of the first appearance of the Godhead in man. St. Chrysostom mentions it in the fourth century as an ancient feast in Asia of the manifestation of Christ.² This feast was celebrated in Vienna in 360 A. D., and passed into the western church as Christ's manifestation of Himself to the heathen world.

The Feast of the Nativity on Dec. 25th was established in Rome after 350 A. D. by Bishop Liberius,³ and in the East not earlier than 376 A. D., since Chrysostom said in 386 A. D. that the feast had been known less than ten years. Whether, as Neander thinks, the feast was established in accordance with some apocryphal authority, or, as many think, to supply a counter-attraction to the Roman Saturnalia, may not be susceptible of proof. In any case it became heir to the customs of the Saturnalia, and continued them in unbroken tradition.

In pagan Rome the Saturnalia, because of the confusion arising from the adoption of the Julian calendar, was extended by Augustus

¹ Wilken, p. 1.

² Neander, vol. 3, p. 415.

³ Neander, vol. 3, p. 416.

to three days, but was often prolonged by the people to seven.¹ On these days presents were sent to friends, the children held holiday, and slaves had the privileges of freemen.

The Roman church established the Nativity upon the Saturnalia, and within the following week the Feast of St. Stephen, Holy Innocents' Day, and Sunday within the Octave or the first Advent Sunday, which answered to the Roman-heathen New Year, accepting from the Eastern church the feast of the sixth of January for the Adoration by the Magi. This made the whole time from Christmas day until the Octave of Epiphany, the seventh day after the sixth of January, a festival season. That in the minds of the people the pagan tradition was unbroken is proved by the charge of the Manichean Faustus² that the Christians celebrated the solstitia with the pagans, and by the complaint of Leo the Great that the Christians still paid obeisance from some lofty eminence to the rising sun.

These festivals passed directly into the church of France—which may, however, have received the feast of Epiphany from the Greeks—but the church of Germany was much slower in adopting them.³ Advent was not given among the holy times by the synod of Mainz in 813 A. D.,⁴ and it seems certain that it was not generally recognized as a church festival until late in the ninth century.

As a result of this later adoption of the religious festivities by the church of Germany, we find an original difference of custom in the French and German churches regarding Christmas, instead of that striking similarity exhibited by the Resurrection plays. With both the plays sprang from the same source, the church ritual, but they held from the first a different relation to the church festival days, and received at an early date the stamp of the national life and customs.

France, like Italy, probably enjoyed from the first an uninterrupted succession of the Roman comedy as performed by jugglers, mimes, and comic actors.⁵ The pagan festivities of the Saturnalia were, it would

¹ Neander, vol. 3, p. 419.

² Neander, vol. 3, p. 420, quotes Augustine 1. 20, c. Faustus.

³ Neander, vol. 3, p. 420, quotes Leo, p. 26, c. 4.

⁴ Weinhold, p. 44.

⁵ a. It is said that Louis le Debonnaire (778-840) never laughed when thymelici, surræ, mimi, came forward to amuse the people at festivals.—Hase, 210.

b. Thomas Aquinas, Summa ii, 2, qu. 168, art. 3, as referred to by Hase, expounds the office of a player as being serviceable for the enlivenment of men, and as not blameworthy if the players lead an upright life.

c. Sed forte perconteris: fuerunt-ne Sæculis barbaricis inter publicos Ludos Tragœdiæ, aut saltem Comœdiæ? Equidem in remotis Sæculis nullum apertum hujusce rei vestigium hactenus offendi. Post Sæculum vero a Christo nato Undecimum aliquid

appear, transported to the colonies in France. At any rate the religious festivities of the holiday season in the Roman church were so closely copied in France as to argue a similar preparation through the existing customs of the people. The rural unformed comedy, continuing among the people simultaneously with these ecclesiastical festivities, naturally drew nearer to them as they became more dramatic in character, and imparted to them color and license wherever entrance could be obtained. This was the easier to accomplish, since both were the expression of joy and gaiety.

It becomes, therefore, less strange that the feast of St. Stephen, which was under the charge of the young deacons, or the Day of the Holy Innocents, which belonged to the choir boys, should more and more incline to the buffoonery of the holiday time until it became the reproach of the church. That these and the custom of the Boy Bishop and the Feast of the Ass were originally devotional in character, and that their degeneration took place through outside influences and in spite of the church, are easy to prove. In the Linioges ritual we find the Feast of the Innocents in the days of its innocence, and the Boy Bishop, when he first appears in the thirteenth century Freising play of the Nativity,¹ is a very proper person.

The course of development of the Feast of the Ass demonstrates from another side the intimate connection of all Mystery plays with the church services, and the impossibility of attributing the rise of every play to any one portion of the service. In the Middle Ages a reputed sermon of St. Augustine formed one of the lessons of Christmas.² It was not delivered as a sermon, but declaimed as a species of dramatic chant, and was very popular. It cited all the Old Testament witnesses to the coming of Christ, together with Virgil, the Sibyl, and such others as were believed to have foretold the Savior's advent. It was highly dramatic in form, summoning each witness to give his testimony; thus it was but a step forward when persons differently habited gave the responses. This literary idea found epic expression in the Old English *Elene*³ as early as the ninth century, and dramatic form in *The Prophets of Christ* of the twelfth century, as appended to the *Drama of the Foolish Virgins* in the

inveni; quamquam in ea opinione sim, nunquam ita excidisse veterum Latinorum Historioniam Artem, ut abolita prorsus fuerit apud Italos ejus memoria atque usus. . . . Arbitror etiam, aliquid inconditæ Comœdiæ semper fuisse Italis. . . . Muratori *Antiquitates*, vol. 2, col. 847.

d. Julleville, *les Comédiens en France au Moyen Âge*, p. 17.

¹ Julleville, vol. 1, p. 42.

² Julleville, vol. 1, p. 35.

³ *Cynewulf's Elene*, l. 337 ff.

Orleans MS.¹ Among these prophets Balaam is often introduced riding upon his ass, as in the Rouen ritual.² Since each prophet gave his testimony, it was easy, by adding adventitious circumstances, to develop his part into a separate scene, and what was more natural than for the ass to speak as in the Bible narrative? Here comedy stepped in, and when the transition from scene to independent play was made, as we see in the Daniel of Hilarius, of the twelfth century, and the Daniel of Beauvais, which joins the vernacular with the Latin tongue, the Feast named from the ass, now become more prominent than its rider Balaam, begins its unsacerdotal course, to the horror of the devout.³

We cannot tarry longer on this most interesting subject, except to note that these customs, transported to England by French ecclesiastics, either quickly lost or never acquired the reckless profanity of the French customs. The moral sobriety of the English mind makes it averse to religious frivolity. The Boy Bishop became an illustrious example of the good boy;⁴ otherwise Dean Colet would hardly have required the boys of St. Paul's school⁵ to attend the ministrations of the child bishop in St. Paul's.⁶

As we turn now to Germany a very different situation unfolds itself. The pagan Roman beliefs never superseded the heathen beliefs of the Teutonic peoples. The early customs of all the families of the Germanic race have proved wonderfully tenacious of life, and the church in Germany found itself obliged to tolerate much, though less in the South than in the North.

During the centuries before the church of Germany adopted the church festival of Christmas, it had accustomed itself to the holiday festivities of the people. The Jul-fire burned in the homes of Germany, Sweden, and Norway like the Yule log in the English home. The Schimmelreiter, on his steed covered with white, a direct descendant of Wodan,⁷ rode among the holiday makers, as did his kin of the

¹ Wright, p. 30.

² Du Cange, *Festum Asinorum*: Duo missi a Rege Balec dicant, *Balaam, veni et fac*. Tunc Balaam ornatus, sedens super asinam (*hinc festo nomen*), habens calcaria, retineat lora, et calcaribus percutiat asinam, et quidam juvenis, tenens gladium, obstat asinæ. Quidam sub asina dicat: *Cur me calcaribus miseram sic leditis?*

³ For the genesis of the 'sottie' and 'sermon joyeux' from the Fête des Fous, see Julleville, *Les Comédiens en France au Moyen Âge*, p. 32 ff.

⁴ That he sometimes died young was proved by the discovery of the monument of a Boy Bishop at Salisbury.—Hone, 196.

⁵ In the statutes of St. Paul's school, founded 1512, Dean Colet orders the scholars to "come to Paulis Church and hear the Chylde-Byshop's sermon; and after be at the hygh masse, and each of them offer a penny to the Chylde-Byshop."—Hone, p. 198.

⁶ The entire subject of comedy in the early Middle Ages, and its development in the church of France, demands an independent investigation.

⁷ Haupt's *Zeitschrift*, vol. 5, p. 472, art. Wodan, by Kuhn.

hobby-horse in the halls of old England. Many other customs derived from the old faith still held the hearts of the German people, and were incorporated into or modified the later celebration of Christmas. As one result of these customs, the church festivities naturally fell in with the holiday temper of the season, grew rapidly in popularity, and quickly passed more or less into the hands of the people. The Christ-child made the visits from house to house in company with Ruprecht, Frau Mary rocked his cradle in the drama, and Goodman Joseph lent a willing hand.¹

We cannot stop now to consider the Christmas songs and carols in their bearing upon the drama, or to trace the growth of folk-humor and devil-play within the dramas themselves, all of which bear testimony to the heartiness with which the common people adopted these holiday plays, and the extent to which they made them the vehicle of their own humor and the expression of their rough, hearty good nature. After a similar fashion the York and Woodkirk plays of England embody the folk spirit of Yorkshire. A comparison of plays so kindred in spirit, but wholly unconnected in literary development, would prove an instructive study in racial characteristics.

¹ Thus in a play given by Weinhold we read, p. 106:

MARIA :

Ach Joseph lieber, Joseph mein,
wiege mir das kleine Kindelein.

JOSEPH :

Kindla wiega, Kindla wiega !
Ïch koan nich menne Finger biega !
Hunni sausi,
der Kitsche thut der Bauch wih !

ALLE singen :

Lasst uns das Kindlein wiegen,
das in dem Kripplein thut liegen.
O Jesulein süß, o Jesulein süß.

Lasst uns das Kindlein spelsen,
Ihm grossen Dank erweisen.
O Jesulein süß, o Jesulein süß.
Gloria in excelsis Deo.

IX.

THE GROWTH OF THE CHRISTMAS CYCLE.

We will now consider, but briefly, since the process of development is similar to that of the Resurrection plays, the growth of the dramas of the star or Magi, and that of the shepherds, within the liturgy of the church itself.

In the first place we note that the signs of their presence are even less evident in the York Missal than were those of the Resurrection Plays. In the service for Epiphany, in the Sequence for the second day, appears the following :

Thure Deum prædicant, auro regem magnum, hominem mortalem myrrha.
In somnis hos monet angelus, ne redeant ad regem commotum propter regna.
Pavebat etenim nimium regem natum, verens amittere regni jura.

For the third day :

Magi sibi stella micante prævia pergunt alacres itinera patriam quæ eos ducebant ad propriam ; linquentes Herodis mandata.

Qui percussus corde nimia præ ira extemplo mandat infantium agmina inquiri Bethlehem per confinia, et mox privari eos vita.¹

These cannot, perhaps, be considered sure traces of the drama, but in the rubrics of MS. D. for Christmas occur these significant words, which are not found elsewhere in the Missal :

Ad Missam in Gallicantu :—

Paratus interim festivo Decanus vel Præcentor seu aliquis de majoribus personis procedat ad Altare cum suis Ministris etiam festivo indutis. *Peractisque ibidem omnibus quæ juxta morem dicenda vel facienda sunt, incipiat Executor officii ad Altare Gloria in excelsis cum nota de angelis.*²

In die Nativitatis Domini. Ad Magnam Missam. Interim Prælatus vel Decanus sive unus de majoribus dignitatibus cum suis Ministris exeat ad Altare. *Et peractis omnibus ibidem, quæ peragenda sunt, incipiat Sacerdos orationem.*³

These comprise, I think, all the passages in the York Missal that have any bearing upon the plays.

We have no means of determining how elaborate these dramas were to which the York Missal refers. As they were kept out of the Missal itself, it is probable that they were re-written, expanded, or otherwise changed, as the fancy of succeeding generations of monks might suggest.

Of the continental plays several specimens are extant, and the literary relations in the Catholic church were, at that time, so close throughout the West, that the plays of one cathedral church did not

¹ York Missal, p. 32.

² York Missal, p. 14.

³ York Missal, p. 18.

differ essentially from those of another. That we may see, however, what this difference was, as well as learn something of the character of the plays themselves, I give three extended plays which include the Office of the Shepherds and that of the Magi.

Of these plays, the first, the Rouen Play, still held its place in the service, and was, therefore, acted as two plays, the Office of the Shepherds falling on Christmas day, and that of the Magi on Epiphany (Jan. 6th). The third, the Orleans Play, had passed out of the church, and was played "*ad januas monasterii*." It shows a fusion of the two plays, as does also that of Freising. The play is no longer a part of the church service; therefore there is no procession, as in the Rouen Play. The excision of the procession suggested a use for the separate play of the Magi; it was inserted in the place of the procession.

The Orleans Play affords us a view of a first step in cyclic formation. But this method of insertion could find but a limited field of operation, since the earliest plays did not dramatize some world-epic, thus affording a framework for numberless insertions, but were illustrative of some single motive contained in the liturgy.

How the Resurrection Cycle was joined to the Christmas Cycle, and how the resulting cycle of Christ's life was, through the aid of the prophecies, extended back to the creation of the world, will be considered in the following chapters.

Our concern, at present, is with the methods employed for combining the Play of the Shepherds with that of the Magi, i. e., with the formation of the Christmas Cycle itself. Here the Freising Play is of value as illustrating the uniform tradition throughout the churches, for it is certain that the Freising is not immediately derived from the Orleans, nor the Orleans from the Freising. Neither was the Freising play formed from the Rouen, though possibly the Orleans play may have been.

These positions are supported by many proofs. The most evident, as regards the Freising, is the absence of the Adoration by the Shepherds. This shepherd episode in F would seem to point to an early liturgical form for model. The angel makes the announcement; the shepherds say, Let us go; the Magi meet them returning, and they announce that they have seen the child. The dramatic situation involved in the adoration is entirely omitted. This is the case also in the Nantes and Laon rituals.

Elsewhere in the development of dramatic incident, F, R and O do not agree. In the first recognition of the star F agrees with R,

and gives a more dramatic form than that of O, since in O the Third Magus is silent. This is one point in evidence that O, if derived from R, must be derived from an older form of R. The kiss of peace is found in O alone. The Herod episodes in F and O show such striking agreement in parts as to preclude the supposition of absolutely independent construction; still there are such transpositions and developments of detail as render it equally incredible that either was taken directly from the other.

It would carry me too far from the direct course of this investigation to trace these developments to their sources, if, indeed, it would prove possible with the material extant. It may be profitable to state briefly the characteristics here presented, and leave it for others to modify the statements through comparison with other plays.¹

1. The Herod play in F and in O is developed from a common original.

2. The Herod play was introduced to supersede the procession, possibly because the play was taken out of the service in obedience to some reforming impulse, and played, like the Orleans play, "*ad januas monasterii.*"

3. Herod has already his conventional anger and brusqueness, but not his later bombast.

4. The son's part is defined in O, and the action of the scribes in both F and O.

5. F plainly points to the succeeding play of the Slaughter of the Innocents, yet strangely enough puts into the mouth of the soldier in "*Discerne, domine,*" the words of the *Interfectio Puerorum* of the Orleans MS. instead of those of the *Ordo Rachelis*, though the *Ordo Rachelis* appears to belong to the same section as F.

6. The King uses in all three plays, viz: F, *Interfectio Puerorum*, and *Ordo Rachelis*, the much-mentioned Sallust tag, "*Incendium meum ruina extingui.*"

Many minor points of interest will be briefly indicated in the notes accompanying the plays. I cannot refrain, in passing, from the remark that an investigation confined to the steps of development and relationship among the early plays of the Christmas time would probably yield rich results, if all the extant material were at command.

¹ Important agreements with F and O are shown by a play upon the same subject in *Carmina Burana*, Stuttgart, 1847; cp. Weinhold, p. 57.

THE ROUEN, FREISING AND ORLÉANS
CHRISTMAS PLAYS.

Rouen,¹ XIV Century.

Finito Te Deum laudamus, peragatur Officium Pastorum hoc modo secundum Rothomagensem usum. Præsepe sit paratum retro altare, et imago S. Mariæ sit in eo posita. In primis QUIDAM PUER ante chorum in excelso in similitudinem Angeli Nativitatem Domini annuntians ad quinque Canonicos quindecim marcharum et librarum, vel ad eorum vicarios de secunda sede, PASTORES intrantes, per magnum ostium chori, per medium chorum transeuntes, tunicis et amictis indutos, hunc versum ita dicens:

Nolite timere, ecce enim evangelizo vobis gaudium magnum quod erit omni populo, quia natus est vobis hodie Salvator, qui est Christus Domini, in civitate David. Et hoc vobis signum: invenietis infantem pannis involutum, et positum in præsepio.

Sint PLURES PUERI⁶ in voltis Ecclesiæ, quasi Angeli, qui alta voce incipiant: Gloria in excelsis Deo, et in terra pax hominibus bonæ voluntatis.

Hæc audientes PASTORES, ad locum in quo paratum est præsepe, accedant cantantes hunc versum:

Pax in terris,⁸ etc.

Quod dum intraverint, DUO PRESBYTERI⁹ dalmaticati de majori sede, quasi obstetrices, qui ad præsepe fuerint, dicant: Quem quæritis in præsepe, pastores? Dicite.

PASTORES¹⁰ respondeant:

*Salvatorem Christum Dominum;
Infantem pannis involutum,
Secundum sermonem angelicum.*

Freising,² X Century.

Ascendant REX et sedeat in solio,⁴ audiatur sententiam⁵ querat consilium, exeat edictum ut pereant continuo qui detrahunt ejus imperio.

ANGELUS⁶ inquit imprimis:

Pastores, annuntio vobis gaudium magnum.

PASTORES:

Transeamus Bethleem ut videamus hoc verbum.

ANGELUS:

Gloria in excelsis Deo, et in terra pax hominibus bone voluntatis.

Orléans,³ XII Century.

HERODES, SIVE MAGORUM ADORATIO.

*Incipit ordo ad representandum Herodem.**Parato Herode et cæteris personis,⁴ tunc QUIDAM ANGELUS cum multitudine in excelsis appareat.*¹ From Du Cange—*Pastorum Officium*—amplified from Weinhold and Du Méril.² From Weinhold and Du Méril.³ From Wright, p. 23.⁴ See discussion of manner of presentation.⁵ In many places illegible.*Quo viso PASTORES perterriti, salutem annunciet eis, de cæteris adhuc tacentibus:**Nolite timere vos, ecce enim euangelizo vobis gaudium magnum, quod erit omni populo, quia natus nobis hodie Salvator Mundi, in civitate David, et hoc vobis signum: invenietis infantem pannis involutum et positum in præsepio, in medio duum animalium.**Et subito OMNIS MULTITUDO⁶ cum Angelo dicat:**Gloria in excelsis Deo, et in terra pax hominibus bonæ voluntatis. Alleluia! Alleluia!**Tunc demum surgentes cantent intra se: Transeamus, etc., et sic procedant usque ad præsepe,⁷ quod ad januas monasterii paratum erit:**Transeamus usque Bethleem, ut videamus hoc Verbum quod factum est, quod fecit Dominus et ostendit nobis.*⁶ The original actors were boys, as per R.⁷ In O, cradle at the monastery gate; in R, behind the altar.⁸ The five stanzas are given by Du Méril, p. 146.*Tunc DUÆ MULIERES⁹ custodientes præsepe interrogent pastores, dicentes:*⁹ Presbyters personated women. At Nantes the Cantor asks the question; at Laon the Cantor and Subcantor.*Quem quæritis, pastores, dicite?**PASTORES¹⁰ respondeant:
Salvatorem Christum dominum;
Infantum pannis involutum,
Secundum sermonem angelicum.*¹⁰ Priests at Laon, boys at Nantes, who use the words in which the shepherds reply to the Magi in F. The adoration is omitted at Laon and Nantes.

Rouen, XIV Century.

*Item OBSTETRICES cortinam aperientes,
Puerum demonstrant, dicentes:*

*Adest hic parvulus cum Maria matre
sua, de qua dudum vaticinando Isaias
dixerat propheta.*

Hic ostendant matrem¹ pueri, dicentes:
*Ecce Virgo concipiet et pariet filium,
et nunc euntes dicite quia natus est.*

*Tunc, eo viso, inclinatis cervicibus ador-
ent Puerum, et saluent, dicentes:*

Salve Virgo² singularis,³ etc.

*Deinde vertant se ad chorum redeuntes,
et dicentes:⁴*

*Alleluia, Alleluia, jam vere scimus
Christum natum in terris: de quo
canite omnes, cum Propheta dicentes.*

*Hoc finito, incipiatur Missa,⁵ et PAS-
TORES regant chorum. Dom. Archie-
piscopus, si præsens fuerit, cantet Mis-
sam.*

This ends the Rouen *Pastorum Offi-
cium* for Christmas.

*Officium Regum Trium, secundum usum
Rotomag. Die Epiphaniæ, Tertia can-
tata, tres de majori, sede more Regum
induti, et debent esse scripti in tabula.
Ecce tribus partibus ante altare conven-
iant cum suis famulis portantibus Re-
gum oblationes, induti tunicis et amictis.
Et debent esse de secunda sede scripti in
tabula ad placitum scriptoris. Ecce tri-
bus Regibus MEDIUS ab oriente veniens,
stellam cum baculo ostendens, dicat alte:
Stella fulgore nimio rutilat.*

SECUNDUS REX a dextra parte respondeat:
Quæ Regem Regum natum demonstrat.

TERTIUS REX a sinistra parte dicat:
*Quem venturum olim prophetiæ signa-
verant.*

Freising, X Century.

MAGUS PRIMUS:

Stella fulgore nimio rutilat.

SECUNDUS:

Que regem regum natum monstrat.

TERTIUS:

*Quem venturum olim prophetie signa-
verant.*

Orléans, XII Century.

MULIERES :

Adest parvulus, cum Maria matre ejus,
de quo dudum vaticinando Ysaïas propheta
dixerat : Ecce virgo concipiet et
pariet filium.

Tunc PASTORES procedentes adorent infantem dicentes :

Salve rex sæculorum !

Postea surgentes invitent populum, circumstantes, ad adorandum infantem, dicentes turbis vicinis :³

Venite, venite, adoremus Dominum,
quia ipse est Salvator noster.

¹ The image of Mary, a special development of R.

² Note the greater prominence given to the Virgin in R.

³ The two stanzas are given by Du Méril, p. 150.

⁴ Note that the closing of R at this point leads to an important variation.

⁵ These words prove that the Office of the Shepherds immediately preceded the Mass of the Day, for which the Introit was Isaiah 9. 6.—Du Méril, p. 150.

Interim magi, prodeuntes⁶ quisque de angulo suo, quasi de regione sua, conveniant ante altare, vel ad ortum stelle, et dum appropinquant PRIMUS dicat :
Stella fulgore nimis rutilat.

⁶ In O, the people are watching the cradle when the Magi enter unobserved. The Limoges ritual introduces them with pomp.

SECUNDUS :

Quem venturum olim propheta signaverat.

Tunc stantes collaterales, dicat DEXTER ad medium : Pax tibi frater ; et ILLE respondeat : Pax quoque tibi ; et osculentur sese : sic medius ad sinistrum, sic sinister ad dextrum. Salutatio cuique.

DEXTER ad medium :

Pax tibi, frater !

Rouen, XIV Century.

Freising, X Century.

*Tunc MAGI ante altare sese osculentur,
et simul cantent :*

Eamus¹ ergo, et inquiramus eum, offer-
entes ei munera; aurum, thus, et
mirram.

*Hoc finito, CANTOR incipiat Responso-
rium :*

Magi veniunt,² etc.

*Et moveat processio.*³

Versus :

Cum natus esset Jesus in Bethleem
Judæ, in diebus Herodis regis, ecce
Magi ab Oriente venerunt Jerosolymam,
dicentes : Ubi est qui natus est ? Cujus
stellam vidimus, et venimus adorare
Dominum.

*Sequatur aliud Responsorium, si nec-
esse fuerit :*

Interrogabat Magos,⁴ etc.

*Processio in navi Ecclesie constituta,
stationem faciat.*

SIMUL cantent :

Eamus¹ ergo et inquiramus eum, offer-
entes ei munera; aurum, thus, et
mirram.

Dicite³ nobis, O Hierosolymitani cives,
ubi est expectatio gentium, noviter
natus rex Judeorum, quem signis celes-
tibus agnitum venimus adorare ?

INTERNUNCIUS⁵ currens :

Salve, rex Judeorum !

REX :

Quid rumoris affers ?

INTERNUNCIUS⁶ :

Assunt nobis, domine, tres viri ignoti
ab oriente venientes, noviter natum
regem quandam querentes.

REX :

Que sit causa vere, jamjam citus, im-
pero, quere.

INTERNUNCIUS ad Magos :

Que rerum novitas aut que vos⁷ causa
subegit

Ignotas temptare vias ? quo tenditis
ergo ?

Quod genus ? unde domo ? pacemne huc
fertis an arma ?

MAGI :

Chaldei sumus, pacem ferimus,
Regem regum querimus,
Quem natum esse stella indicat
Que fulgore ceteris clarior rutilat.

Orléans, XII Century.

Responsio CUJUSQUE:

Pax quoque tibi !

Tunc ostendant sibi mutuo [stellam] :

Ecce stella ! ecce stella ! ecce stella !

*Procedente autem stella, sequentur IPSI
præcedentem stellam dicentes :*

Eamus¹ ergo et inquiramus eum, offer-
entes ei munera, aurum, thus, et myr-
rham, quia scriptum didicimus : Ador-
abunt eum omnes reges, omnes gentes
servient ei.

*Venientes ad ostium chori, interrogent
astantes :*

Dicite² nobis, O Ierosolimitani cives,
ubi est expectatio gentium, ubi est qui
natus est rex Judæorum, quem signis
cœlestibus agnitum venimus adorare ?

¹ Also at Limoges.

² Given in full by Du Méril, p. 154.

³ F and O insert Herod episode, R the
procession. At Limoges the magi lay down
their presents and go to the offering.

*Quibus visis, Herodes mittat ad eos
ARMIGERUM, qui dicat :*

Quæ rerum novitas aut quæ vos causa
subegit

Ignotas temptare vias ? quo tenditis
ergo ?

Quod genus ? unde domo ? pacemne
huc fertis an arma ?

⁴ Given by Du Méril, p. 154.

⁵ F informs the king by a messenger of
the approach of the magi ; O allows Herod
to perceive it for himself.

⁶ Authors seem to disagree as to position
of this. Probably the position in O is the
original one.

⁷ Lines illegible, partly supplied from O.

MAGI :

Chaldæi sumus ; pacem ferimus ;
Regem regum quærimus,
Quem natum esse stella indicat,
Quæ fulgore cæteris clarior rutilat.

Rouen, XIV Century.

Freising, X Century.

INTERNUNCIUS *ad regem* :

Vive rex in æternum :

REX :¹

Quid . . . habesque . . . nunti . . .
vives.

INTERNUNTIUS :

Rex mir . . . regis . . .

. . . vocemus ut eorum sermones au . . .

INTERNUNTIUS *ad Magos* :

Regia vos mandata vocant, non segniter
ite.

ad regem :

En Magi veniunt et regem regum natum,
stella duce, requirunt.

Orléans, XII Century.

ARMIGER *reversus salutat regem ; flexo
genu dicat :*

Vivat rex in æternum !

HERODES :

Salvet te gratia mea !

ARMIGER :

Adsunt nobis, Domine, tres viri ignoti,
ab oriente venientes, novum natum
quemdam regem quæritantes.

*Tunc mittat HERODES oratores vel inter-
pretes suos ad magos, dicens :*

Læti inquisitores, qui sunt inquireite
reges,

Affore quos nostris jam fama revolvit
in oris.

INTERPRETES *ad Magos :*

Principis edictu, reges, præscire veni-
mus

Quo sit profectus hic vester et unde
profectus ?

MAGI :

Regem quæsitum, duce stella signifi-
catum,

Munere proviso, properamus eum ven-
erando.

ORATORES, *reversi ad Herodem :*

Reges sunt Arabum ; cum trino munere
natum

Quærun't infantem, quem monstrant
sidera regem.

HERODES, *mittens Armigerum pro*

Magis :

Ante venire jube, quo possim singula
scire,

Qui sunt ? cur veniant ? quo nos ru-
more requirant ?

ARMIGER :

Quo mandas citius, rex inclite, profi-
cietur.

ARMIGER *ad Magos :*

Regia vos mandata vocant, non segniter
ite.

ARMIGER, *adducens Magos ad Herodem :*
En Magi veniunt, et regem natum,
stella duce, requirunt.

¹ The normal form of this episode prob-
ably differs from both of these. The num-
ber of actors appears to have confused the
authors.

Rouen, XIV Century.

Freising, X Century.

REX *ad internuntium* :

Ante venire jube, quo possim singula
scire, qui sint, cur veniant, quo nos ru-
more requirant . . . inde . . . aut . . .
dic . . . suavis ex . . .

REX *ad Magnum primum* :

Tu mihi responde stans primus in
ordine, fari !

Respondeat PRIMUS :

Impero Chaldeis dominans rex omnibus
illis.

Ad Secundum :

Tu, autem, unde es ?

Respondeat SECUNDUS :

Tharsensis regio me rege . . . Zoroastro.

Ad Tertium :

Tute . . . unde es ?

Respondeat TERTIUS :

Me . . . Arabes, mihi parent usque
fideles.

REX :

Regem, quem queritis, natum esse, quo
signo didicistis ?

Respondeant :

Illum natum esse didicimus in oriente ;
stella monstravit.

REX :

Ex quo illum regnare creditis, dicite
nobis.

Nunc respondeant :

Hunc regnare fatentes, cum mysticis
muneribus
de terra longinqua adorare venimus.

PRIMUS :¹

Auro regem.

SECUNDUS :

Thure deum.

TERTIUS :

Mirra mortalem.

REX *ad milites* :

Vos mei sinistri, accite disertos pagina
scribas prophetica.

Orléans, XII Century.

HERODES, *ad Magos* :

Quæ sit causa viæ ? qui vos ? vel unde
venitis ?

Dicite.

MAGI :

Rex est causa viæ ; reges sumus ex
Arabitis ;
Huc quærimus Regem regnantibus im-
peritantem,
Quem natum mundo lactat Judaica
virgo.

HERODES :

Regem quem quæritis natum esse quo
signo didicistis ?

MAGI :

Illum regnare fatentes,
Cum mysticis muneribus
De terra longinqua adorare venimus
Ternum Deum venerantes tribus cum
muneribus.

Tunc ostendant munera ; PRIMUS¹ dicat :
Auro regem.

¹ At Limoges given in song with action
while advancing through the choir, before
the star has been seen.

SECUNDUS :

Thure Deum.

TERTIUS :

Myrtha mortalem.

*Tunc HERODES imperat sinistris qui cum
eo sedent in habitu juvenili, ut addu-
cant Scribas qui in diversorio parati sunt
barbati :*

Vos, mei sinistri,
Legisperitos ascite,
Ut discant in prophetis
Quod sentiant ex his.

Rouen, XIV Century.

Freising, X Century.

MILES *ad scribas* :

Vos legis periti,¹
 ad regem vocati,
 cum prophetarum libris
 properando venite.

REX, *ad scribas* :

O vos scribe,
 interrogati dicite,
 si quid de hoc puero
 scriptum habetis in libro.

Respondeant SCRIBE :

Vidimus domine in prophetarum libris,
 nasci Christum in Bethlehem civitate,
 David propheta sic vaticinante.

*Antiphona Bethlehem.*REX² *ad scribas* :

. . . finem spectat prudentia rerum ?
 Vadite cum vestris . . . estis !
et projiciat librum.

REX *ad procures* :

Consilium nobis, Proceres, date laudis,
 honoris. . . .

ARMIGER³ *ad regem* :

Audi que facias, rex, audi pauca sed
 apta ! mox des dona Magis, ne
 morari, ut noviter nato quem querunt
 rege reperto, rex, per te redeant ut te
 ipse scias quod adores.

REX *ad armigerum* :

Abduc externos citius, vasalle, tyrannos.

ARMIGER *ad magos* :

Regia vos mandata vocant.

Orléans, XII Century.

SINISTRI *ad* Scribas, *et adducant eos*
cum libris prophetarum :

Vos, legisperiti,¹

Ad regem vocati,

Cum prophetarum libris

Properando venite.

¹ This incident seems to have been exactly copied from one original.

Postea HERODES *interroget* Scribas,
dicens :

O vos, scribæ,

Interrogati dicite,

Si quid de hoc puero

Scriptum videritis in libro.

Tunc SCRIBÆ *diu revolvant librum, et tandem inventa quasi prophetica, dicant :*
 Vidimus, Domine, etc., *et ostendentes cum digito regi incredulo tradant librum :*

Vidimus, Domine, in prophetarum

Lineis, nasci Christum

In Bethleem Judæ civitate,

David propheta sic vaticinante.

Chorus. Bethleem non est minima, etc.

Tunc HERODES,² *visa prophetica, furore accensus, projiciat librum ; et FILIUS ejus, audito tumultu, procedat pacificaturus patrem, et stans salutet eum :*

² Here there is variation again. The wrath is the same, but the wording is different.

Salve, pater inclite,

Salve, rex egregie,

Qui ubique imperas,

Sceptra tenens regia.

HERODES.

Fili amantissime,

Digne laudis munere,

Laudis pompam regiæ

Tuo gerens nomine,

Rex est natus fortior,

Nobis [que] potentior ;

Vereor ne solio

Nos extrahet regio.

³ The soldier in F gives the advice upon which the king acts ; in O he acts without advice. The introduction of the son seems to have led the author astray.

Tunc FILIUS *despective loquens, afferat se ad vindictam, dicens :*

Contra illum regulum,

Contra natum parvulum,

Jube, pater, filium

Hoc inire prælium.

Tunc demum dimittat HERODES Magos
ut inquirant de puero, et coram eis spondeat regi nato, dicens :

Rouen, XIV Century.

Dum autem processio navem Ecclesiæ intrare cæperit, corona ante crucem pendens in modum stellæ accendatur, et MAGI stellam ostendentes, ad imaginem sanctæ Marice super altare crucis prius positam cantantes pergant :

Ecce stella in Oriente prævisa¹
iterum præcedit nos lucida.² etc.

Freising, X Century.

Ite, et de puero diligenter investigate,
et, invento, redeuntes mihi renunciate,
ut ego veniens adorem eum.

MAGI *aspicientes stellam canant :*
Ecce stella in oriente prævisa¹
iterum præcedit nos lucida.

MAGI³ *ad pastores :*
Pastores, dicite, quidam vidistis ?

PASTORES :
Infantem vidimus pannis involutum.

Hoc finito, DUO⁵ de majori sede cum Dalmaticis et utraque altaris parte stantes, suaviter respondeant :

Qui sunt hi qui, stella duce, nos adeuntes inaudita ferunt ?

MAGI⁶ *dicunt :*

Nos sumus, quos cernitis, reges Tharsis et Arabum et Sabæ, dona ferentes Christo regi nato, domino, quem, stella deducente, adorare venimus.

ANGELUS :⁵

Qui sunt hi qui stella duce, nos adeuntes inaudita ferunt ?

MAGI⁶ *respondeant :*

Nos sumus, quos cernitis, reges Tharsis et Arabum et Sabæ, dona ferentes Christo nato, regi domino, quem, stella duce, adorare venimus.

Orléans, XII Century.

Ite, et de puero diligenter investigate,
Et invento, redeuntes michi renunciate,
Ut ego veniens adorem eum.

*Magis egredientibus, præcedat stella eos,
quæ nondum in conspectu Herodis appa-
ruit, quam IPSI sibi mutuo ostendentes,
procedant. Qua visa Herodes et filius
minentur cum gladiis.*

Ecce! stella in oriente prævisa¹

Iterum præcedit nos lucida.

*Interim PASTORES, redeuntes a præsepe,
veniant gaudentes et cantantes in eundo.
O regem cœli!*

*Ad quos MAGI:*³

Quem vidistis?

PASTORES:

Secundum quod dictum est nobis ab
angelo de puero isto, invenimus infan-
tem pannis involutum et positum in
præsepio, in medio duum animalium.

*Postea, pastoribus abeuntibus,*⁴ MAGI
*procedant post stellam usque ad præ-
sepe, cantantes:*

Quæ non prævalent propria magnitudine,
Cœlum, terra, atque maria lata capere,

De virgineo natus utero,

Ponitur in præsepio,

Sermo cecinit quem vaticidius:

Stat simul bos et asinus.

Sed oritur stella lucida

Præbitum Domino obsequia,

Quem Balaam ex Judaica

Nasciturum dixerat prosapia.

Haec nostrorum oculos fulguranti lu-
mine perstrinxit lucida,

Et nos ipsos provide ducens ad cuna-
bula resplendens fulgida.

*Tunc OBSTETRICES*⁵ *videntes, Magos allo-
quantur:*

Qui sunt hii qui, stella duce,

Nos adeuntes inaudita ferunt?

MAGI:⁶

Nos sumus quos cernitis reges Tharsis
et Arabum et Saba, dona ferentes
Christo nato, regi Domino, quem, stella
ducente, adorare venimus.

¹ Here the procession and Herod episode closing, the three plays agree again.

² Given in full by Du Ménil, p. 155.

³ In O the shepherds have an appropriate introduction, in F none.

⁴ The introduction of this song is one of many proofs of the higher artistic finish of O.

⁵ Presbyters, evidently.

⁶ These lines would seem to argue a common dramatic origin.

Rouen, XIV Century.

Tunc DUO DALMATICATI *aperientes corti-*
nam, dicant :

Ecce, puer adest quem quæritis. Jam
properate adorare, quia ipse est redemp-
tio mundi.

Tunc procidentēs REGES ad terram simul,
salutent puerum, ita dicentes :

Salve Princeps sæculorum.

Tunc UNUS *a suo famulo aurum acci-*
piat, et dicat :

Suscipe, rex, aurum.

SECUNDUS Rex *ita dicat, et offerat :*
Tolle thus, tu vere deus !

TERTIUS *ita dicat, et offerat :*
Myrrham, signum sepulture.

Interim fiant oblationes a clero et pop-
ulo, et dividatur oblatio prædictis
Canonicis.

Tunc Magis orantibus, et quasi somno
sopitis, QUIDAM PUER alba indutus, et
quasi Angelus, in pulpito³ illis dicat
hanc antiphonam :

Impleta sunt omnia quæ Prophetice
dicta sunt. Ite ab viam remeantes
aliam ne delatores tanti regis puniendi
eritis.⁴

Hoc finito, CANTOR incipiat ad introitum
Chori responsorium :

Tria sunt munera.⁵

*Versus.*⁷ Salutis nostræ auctor.

Ad Missam tres Reges Chorum regant,
qui festive cantent :

Kyrie Fons bonitatis, Alleluja.
Sanctus, et Agnus.

Officium :
Ecce advenit.

Freising, X Century.

OBSTETRICES :

Ecce, puer adest quem queritis. Jam
properate et orate quia ipse est redemp-
tio mundi.

Intrantes MAGI :

Salve princeps sæculorum.

PRIMUS :²

Suscipe, rex, aurum !

SECUNDUS :

Tolle thus, tu vere deus !

TERTIUS :

Mirram, signum sepulture.

ANGELUS *ad prostratos magos :*

Impleta sunt omnia que prophetice
dicta sunt. Ite, viam remeantes aliam,
ne delatores tanti regis puniendi sitis.

MAGI *redeuntes antiphonam canant :*
O regem celi.⁶

INTERNUNCIUS :

In æternum vive domine !
Magi viam redierunt aliam.

REX *prosiliens :*

Incendium meum ruina extinguam !⁸

ARMIGER :

Discerne,⁹ domine, vindicare iram tuam
et stricto mucrone querere jube pueros ;
forte inter occisos occidetur et puer.

REX *gladium versans armigero reddit*
dicens :

Armiger eximie, pueros fac ense pe-
rire !

Orléans, XII Century.

OBSTETRICES *ostendentes puerum* :

Ecce, puer adest quem quæritis. Jam properate et adorate, quia ipse est redemptio mundi.

MAGI :

Salve, rex sæculorum !
Salve, Deus Deorum !
Salve, salus mortuorum !

Tunc procedentes MAGI, adorent Puerum et offerent.

PRIMUS² *dicat* :

Suscipe, rex, aurum, regis signum.

SECUNDUS :

Suscipe myrrham, signum sepulturæ.

TERTIUS :

Suscipe thus, tu vere Deus.

Istis factis, Magi incipiant dormire ibi ante præsepe, donec ANGELUS desuper apparens, moneat in somnis ut redeant in regionem suam per aliam viam :

Impleta sunt omnia quæ propheticè scripta sunt. Ite viam remeantes aliam, nec delatores tanti regis puniendi eritis.

MAGI *evigilantes* :

Deo gratias ! surgamus ergo, visione moniti angelica et, calle mutato, lateant Herodem quæ vidimus de puero.

Tunc MAGI abeuntes per aliam viam, non vidente Herode, cantent :
O admirabile commercium !
Creator omnium.

Tunc venientes choro, dicent :

Gaudete, fratres,
Christus nobis natus est,
Deus homo factus est !

Tunc CANTOR incipit :

Te Deum, etc.

¹ Another proof of artistic superiority in O.

² An episode common in earlier ritualistic plays, probably the invention of one author there.

³ A platform necessary as in Sens resurrection play, p. 191.

⁴ NOTE.—Then the three kings go through the side aisles out of the church and reënter by the left door into the choir.

⁵ Given in full by Du Méril, p. 152.

⁶ The closing of F is evidently a reminiscence of some play of the slaughter of the innocents.

⁷ The closing of R shows its affinity to the church service.

⁸ The Sallust tag which occurs also in 'Interfectio Puerorum' and in 'Ordo Rachelis.' Sallust is quoted also in the second journée of Saint Didier, and other classics elsewhere.—Julleville, *Les Mystères*, vol. 1, p. 261.

⁹ Agrees with 'Interfectio Puerorum.'

Here we close the second step of our investigation. We have seen the simple liturgy of the early church grow into an elaborate symbolism, which presented the life and work of Jesus so indirectly that the hearts of men were seldom touched by its teachings. This symbolism the new faith in a daily sacrifice revived, and through it men's hearts were again melted by the tragedy of the cross. In the Western church the desire to view concretely that which had touched the heart so profoundly, led to theatrical representation of the highest dramatic moments of the ritual. Two groups of such moments we have followed down : the first, until we found it passing over to the vernacular, a sure sign of severance from the church offices ; the second, until single plays became but scenes or episodes in a more complicated drama, another sign of approaching independence, since such plays could no longer hold their appropriate places in the church calendar.¹

As these plays conform more and more to the popular taste, the sphere of their influence broadens, and their volume expands. Soon they will supplant the *chanson de geste* in the affections of the French, and the literati of a nation will express through them the mocking spirit of the Gaul, cutting with its satire the foibles of church and nation.

It is no part of our present plan to seek in these later plays of the continent for testimony concerning mediæval thoughts and manners, nor to examine, except cursorily, into their development or stage-setting. We are nearing the time when the English plays, evidently the outcome of long-established literary traditions, will present themselves fully developed, the most sympathetic exponent of the popular life of England in their day, and will offer to us, in the question of their literary ancestry and relationships what, to my mind, is the most interesting literary problem of the Middle Ages.

Some knowledge, however, of the impress of the national spirit upon the cyclic plays of the continent, as shown in their form and in the manner of their presentation, will give increased significance to many features of the English plays. Accordingly, we turn again to the continental plays to learn how cycles were built up, with something of their content and dependence upon the devices for their presentation. It will be necessary, also, to consider the attitude of the church towards the plays while they remained within the church edifice, as well as after they had passed out from under clerical authority, and to notice in passing the organizations, literary and otherwise, that made them their care.

¹ It must be borne in mind that the simple plays of the church offices held their own until the Reformation, side by side with the expanded plays, and that sometimes clergy and laity were in active competition.

X.

THE STAGE AND THE PLAY IN FRANCE.

In the Orleans and Freising plays we have seen one method of combination by which single and ritual plays formed a continued drama. A related development is connected with the evolution of the stage. In the Mont St. Michel and Sens resurrection plays we are informed that the angel had a station 'super altare,' 'in pulpito.' In the 'Officium Peregrinorum' of Rouen are these words: "Et ita cantantes, ducant eum usque ad tabernaculum in medio navis ecclesiæ, similitudinem castelli Emau præparatum." In the Orleans play we read as a stage direction: "Parato Herode et cæteris personis," and in the Freising play: "Ascendat rex et sedeat in solio."

From these directions it is evident that all the actors took their assigned positions upon the stage at the opening of the play, and were conventionally absent when not performing their parts. Thus we read in the Orleans play: "Tunc Magi abeuntes per aliam viam, non vidente Herode;" so, in 'Interfectio Puerorum,' "Joseph abiens, non vidente Herode."

The greater number of the actors did not move about the stage, but held fixed stations which were marked out upon the platform¹—here a throne and palace hall, there the interior of a dwelling—while one or two actors passed from group to group, connecting through their action the different episodes, each of which embodied a single ritual play. These platforms were originally erected in the nave; at Rouen,² "in medio navis ecclesiæ." Upon the platform the stations,³ at first but slightly marked off, were afterwards defined by upright posts and cross-beams, the platform extending farther down the nave as the stations increased in number. The plays seem often to require an unobstructed view across the stage, which would necessitate stations without sides, and as nearly as possible free from theatrical furniture and scenery.⁴

How these primitive theatrical arrangements were used we learn from certain miracle and mystery plays. In the 'Secundum Miraculum Sancti Nicholai' of the Orleans⁵ MS., there is one station, the house of Senex. The action is as follows:

¹ See p. 189.² See p. 174.³ See p. 189.⁴ Wright.⁵ Ebert, vol. 5, p. 68.⁶ Du Cange, *Peregrinorum Officium*.⁷ Cp. Julleville, vol. 1, p. 388.⁸ Mone, vol. 2, p. 158.⁹ Wright.

The traveling students approach, converse, enter, dine, and go to sleep. Their death is planned and in some way, probably by dumb show, represented. St. Nicholas applies for admission, enters, in dining brings conviction to Senex by his words, prays that the students may be restored to life, and students and all join in the closing 'Te Deum laudamus.'¹

In the 'Quartum Miraculum Sancti Nicholai,' of the same MS.,² the stations have grown to three. On one side Rex Marmorinus sits enthroned, with armed guards; on the other side Rex Getron with wife, son, and attendants; in the centre stands the church of St. Nicholas. The action is carried on principally by messengers, is brief, and illustrates the use of fixed stations.

The attendants salute Rex Marmorinus: "Salve, princeps, salve, rex optime!" The king orders them to go forth, subjugate the world, and slay those resisting them.

Getron with wife, son, and priests goes to the church as to some church festival. At the sight of the guards of Marmorinus, who are carrying out their lord's mandates by an advance upon the church, Getron flees, leaving the boy behind, who is led in triumph by the soldiers to their king, to whom they announce: "Quod jussisti, rex bone, fecimus."

The king ascribes praise to Apollo and inquires of the boy his parentage. This question gives occasion for six quatrains, rhyming in couplets, in which the king affirms: "Deus meus Apollo Deus est," and the boy stoutly maintains: "Deus tuus mendax et malus est."

Meanwhile, Getron's wife, discovering her loss, returns to the church in search for her son, and now bursts forth into lamentations. Her attendants seek to comfort her, and she prays to Nicholas for the return of her son:

Nicholæ, pater sanctissime,

* * * * *

Fac ut meus redeat filius.

It seems that she then returns home, although the stage direction is lacking, and her husband in four quatrains, rhyming in couplets, advises dependence upon Nicholas. They then arise, go to the church, and she again prays to St. Nicholas. Afterwards they return home, and the table is spread with bread and wine, of which the clergy and beggars partake,—possibly a hint to the lookers-on of the proper treatment of the student actors.

About this time, Rex Marmorinus decides that he is hungry, and calls for food, which his attendants bring. Water also is brought; the king washes his hands, and eats. He is thirsty, and bids the son of Getron bring wine. The boy sighs heavily, the king demands the cause, and emphasizes the impossibility of rescue. Incidentally, the boy states that he has been prisoner a year. Now enters "aliquis in similitudine Nicholai," and leads the boy out of the king's house. This, in spite of the attention centered upon the boy, no one discovers!

A citizen of Getron's dominions, who for unexplained reasons is in hostile territory, asks the lad's name, and runs to Getron with the news:

Gaude, Getron, nec fleas amplius;

Extra fores stat tuus filius.

Nicholai laudat magnalia,

Cujus eum reduxit gratia.

The mother hurries to her son, kisses him repeatedly and praises God and St. Nicholas. The play ends, "Chorus Omnis."

¹ The Salisbury Missal of 1534 has a picture of St. Nicholas, with the children rising from a tub, where their members have been placed in pickle by the inn-keeper.—Hone's *Ancient Mysteries*, p. 191.

² Wright.

Such plays make us conscious of the feeble beginnings from which dramatic art has arisen. This play reads like a children's play for an improvised theater. The playwright succeeds fairly well in the capture, though the absurdity shown in the confidence of the soldiers that such a capture fulfilled such a command is apparently not evident to the author. The child is now in the king's power; how to contrive a reasonable escape would seem a difficult problem, but it does not trouble our dramatist. The boy is reintroduced through his conversation with the king, though this expedient would seem to make his unobserved escape a difficult matter. Not at all; an invisible St. Nicholas enters and sets the boy over the threshold, when he is free to go where he will. The infancy of art alone possesses such resources. Rex Marmorinus does not leave his seat during the play, and Rex Getron simply walks to the church and back. Such simplicity of action requires a narrative play with no complexity of situation and but few leading characters. To such requirements the Bible story readily adapts itself, as we shall now see in the condensed cyclic play found in the earliest extant Italian mystery play, and in one of the thirteenth century in Germany.

XI.

THE STAGE AND THE PLAY IN ITALY.

According to Klein the oldest Italian plays,¹ known as "Devotioni," were designed, the first for Maundy Thursday, the second for Good Friday.² An analysis may be given as follows:³

The scene opens with the meal at the house of Lazarus six days before Easter.⁴

Christ enters as from Jerusalem. Mary, followed by Mary Magdalene and Martha, goes to meet Him, embraces Him, and conjures Him not to return, as the Jews will kill him. Christ answers that He must do the will of His Father, but that she must not be sad, as He will tell her before He goes. They embrace again.

At that the meal is served. Mary remains standing by Christ, saying continually, "My Son, My Son." In the meal Lazarus takes part. At the close Christ calls Mary Magdalene to his side and informs her, while she kneels before Him, that He will go to-day

¹ Dialect old and mixed; Palermo, as referred to by Klein, vol. 4, p. 165. Date in first half of fourteenth century.—Klein, vol. 4, p. 165.

² The only Italian representative of this step of development.—Ebert, vol. 5, p. 66. The play not in the liturgy but acted during service.—Ebert, vol. 5, p. 67.

³ The following abstract follows Klein 4, p. 157 ff., and Ebert in *Jahrbuch für Romanische und Englische Literatur* 5, p. 58 ff.

⁴ Ebert believes that there was a scaffold in the middle aisle, upon which Bethany and the Mount of Olives were located.—Ebert, vol. 5, p. 68; cp. p. 104.

to Jerusalem, where He will suffer the death of the cross. He commends to her care His mother, who will be so deeply troubled. She herself is to keep this news a secret until He is taken.¹ Mary Magdalene promises this, then kisses His feet. He, thereupon, retires and joins the rest of the company, but Mary Magdalene remains. Mary comes to Mary Magdalene and wishes to know what her Son has said, but Mary Magdalene declines to tell. Both, then, go to Christ. Mary would kneel to Him, but is prevented by Him. She asks why He is so sad, and shows great anxiety. Christ now tells her that for the redemption of the world He goes to His death. Mary swoons. Reviving, she bewails her fate. "Call me henceforth no more Mary, since I have lost Thee, my Son!" At the close of the conversation both fall in a swoon. They rise and embrace. Christ then goes to His seat.²

Mary kneels to Judas, begging him not to forsake Jesus, if He should fall into the hands of the people.³ Judas permits her to kneel, and replies ambiguously, "It is not necessary to entreat me more, as I know what I have to do." She then kneels to Peter, who will not permit it, and vows that he will protect Christ against the world. Now go Mary, Mary Magdalene, Martha, and Lazarus to Christ, who embraces His mother, and offers to depart. Mary Magdalene prays that they may accompany Him to the gate of the city, to which Christ assents. They proceed together to Jerusalem. When they reach the gate, Mary declares that she is unwilling to leave her Son. He insists, but promises to send to her the angel Gabriel until John can come. Instantly the angel appears. Mary blesses her Son. Again they swoon. Jesus rises and "steps through another door into Jerusalem." Mary Magdalene and Martha raise and support Mary while she speaks to the people:

O Figlio mio tanto amoroso
O Figlio mio, due se' tu andato ?
* * * * *
Ditemi, o done, per amore de Dio,
Dov' è andato el Figlio mio ?

She then turns to the angel, and entreats him to tell her all the sorrows of Christ, that through the hearing she may find death. Mary Magdalene entreats Mary to return to Bethany and await John's arrival. Mary beseeches the two sisters not to leave her, kneeling before them. They now return to Bethany, Mary speaking touching words to the women by the way.⁴ All enter Bethany together.⁵

Forthwith, the scene of Christ's prayer upon the Mount of Olives begins. He takes with Him Peter, James, and John, commands them to rest but watch, while He goes to pray. He kneels down, takes the cup⁶ in His hand, and, lifting up His eyes, prays. He returns to His followers, as in the Bible narrative. The second time, Christ puts a stone under His head and sleeps a little. After the third prayer an angel appears. Christ now wakens the three young men while, according to the stage direction, the armed men prepare to take Him prisoner. Christ goes to the other apostles. The thief-catchers with Judas come. "Quem quaeritis?" and the following words of Christ are in Latin. The arrest follows. Fastened by a thong, Christ is led away, while all His followers forsake Him.

Here ends the play, but there is little break between this and the 'Devozion' of Good Friday which, beginning when the preacher comes to the passage where Pilate commands that Christ shall be scourged,⁷ is as follows :

¹ Note that Jesus informs His mother soon after, and this requirement of secrecy seems to be satisfied by Mary Magdalene's refusal to tell Mary.

² The conventional exit. Cp. Julleville, vol. 1, p. 389.

³ One of the most artistic touches in the early dramas.

⁴ This consciousness of an audience appears elsewhere in this play, notably where John reminds the women of their sons.

⁵ A conventional exit.

⁶ The prostrations, kissing, blood, and cup are all liturgical traces.—Ebert, vol. 5, p. 70.

⁷ The lesson for the day was Chaps. 18 and 19 of John's Gospel, the nineteenth beginning, "Then Pilate took Jesus and scourged him."—Ebert, vol. 5, p. 67.

Christ enters, stripped for the scourging, with His tormentors, who lead Him through the throng to the assigned spot where the column stands. John stands near Christ. The scourgers strike Him a little reverently, and listen to Christ's words to John, who kneels before Him. He bids John call the Virgin. The men now strike and revile Christ and lead Him away. John asks the people where Mary is. He shows a black garment which he would carry to her, and seeks to rouse feeling by reminding the women of their own sons.¹

Mary Magdalene now comes from the women's side of the church to the stage² and steps before John while she bewails the sad news she has heard. John prays her to accompany him to Mary, as he has not the heart to go alone. Meanwhile Mary appears on the other side and they go to her. She laments when she sees the black garment. Mary Magdalene informs her of Christ's captivity, and invites her to take the garment. Christ now appears bearing His cross, accompanied by a throng of women, to whom He teaches the words of the Bible. Meanwhile, He approaches the spot where Mary, Mary Magdalene, and John stand. Mary hastens to Him to embrace Him. The Jews drive her away. Christ drops His cross. Mary, bemoaning her fate, would take the cross,³ but the Jews drive her back. She falls fainting, and Christ passes on to Golgotha. Mary revives, seeks for her Son, inquires of the women, then goes with Mary Magdalene and John to the place of execution.

Now the preacher⁴ explains the situation, and at a signal from him the Jews nail Christ to the cross and lift it up. Christ speaks, and prays for His enemies. Mary addresses the cross. "Bow down thy branches that thy Creator may find rest."

Inclina li toi rami, o croce alta,
Edola [dona] riposo a lo tuo Creatore;
Lo corpo prezioso ja se spianta;
Lasa la tua forza e lo tuo vigore.

Here again the preacher speaks, while the play pauses until he gives the sign, when Christ's speech with the robbers follows. Now the dead⁵ arise. Three of these speak to Jesus, declaring that the souls in Hell expect Him, the Patriarchs and Prophets; one has also come to stand by Mary and serve her.

The preacher finds it necessary to explain this. Again at the signal the play goes on. The Virgin prays Mary Magdalene to direct Christ's attention to her, saying that He had spoken to the robbers, but not a word to her.⁶ Mary Magdalene complies, and Christ commends His Mother to the care of John, who, kneeling and kissing Mary's feet, strives to comfort her. Mary laments, embraces the cross, and faints.⁷

The preacher takes up his discourse until Jesus cries out, "My God, My God, why hast Thou forsaken me?" Meanwhile, God says to His angels that they must strengthen His Son.⁸ The angels prostrate themselves, withdraw and descend.⁹ They examine to see which is the Son. Meanwhile, the devil appears and approaches the cross upon the right side. One of the angels now descends fully, to receive the blood of Christ. Jesus thirsts. The Jews hand Him with jokes the vinegar mingled with gall, and He refuses to taste it. Mary bewails the malice of the Jews. Jesus exclaims, "It is finished."

¹ See note 4, p. 194.

² The stage is only one location. The action is in different parts of the church.—Klein, vol. 4, p. 164.

³ So Mary desires to take the cross in the Woodkirk Mysteries. The Towneley Mysteries, p. 212.

⁴ Compare the preacher with the expositor in the Chester plays.

⁵ See cut, p. 199.

⁶ This complaint Mary addresses to Christ in the Coventry Mysteries, p. 322.

⁷ Note the author's repeated recourse to this as an expedient for removing Mary temporarily from the action.

⁸ Ebert believes there was a scaffold in the choir which represented Heaven, that there was a Hell mouth and a post for scourging, but that some action took place in the aisles of the church.—Ebert, vol. 5, p. 68.

⁹ There must have been a stairway from Golgotha to Heaven, or some means for pausing midway.

The preacher again explains. At a sign the devil speaks in humble tone, trying to persuade Christ to resign the world to him and save himself from death. Christ turns from him—"Thou wilt never see me rest until I have driven thee out." The devil speaks louder and more threateningly, promising him the lordship of the world. The lance thrust of Longinus¹ follows, his healing and gratitude. Jesus again speaks, commending His spirit to God, at which the devil throws himself upon the ground.

Again the preacher speaks to the people. Mary and John address the people, bemoaning Christ's death. Joseph and Nicodemus enter, and take Christ from the cross. They ask of Mary permission to bury Him. She grants it, but will first embrace Him. This is a touching scene. Joseph stands at Christ's head, Mary Magdalene at His feet. Mary kisses the limbs of Christ, His eyes, cheeks, mouth, sides, and feet, while she speaks touching words to the others or they to her. She shows John the lacerated hands. "These are the holy hands wherewith He blessed all," says John. The angel Gabriel appears to comfort Mary and advise her to permit the burial. Mary grants it with much lamentation. Joseph and Nicodemus carry Christ to the grave, while Mary, John, and Mary Magdalene go down the women's aisle. Mary turns and shows the people the nails of the cross which she carries. Mary Magdalene exhorts them to resist the devil as Jesus had done. Here they enter Jerusalem and the play closes.

XII.

THE STAGE AND THE PLAY IN GERMANY.

The following play is of the thirteenth century.² It shows an intermixture of Latin and German, similar to that observed in the *Ludus de Nocte Pasche*.³ A comparison of the German and Italian plays will serve to show how widely accepted were the same literary conventions among the writers of mysteries. The fixed stations, the continual presence of the actors, their supposed absence when sitting, the avoidance of any complexity of action, such as the advancement of plot through bye-play; all are common characteristics. In development the German play is evidently the older, since it is still largely in Latin. It also lacks many of the dramatic features of the Italian, adhering closely to the Biblical narrative where the Italian artist strikes out a path of his own.

The following abstract was made from Hoffmann's edition of the play:

Pilate and wife with soldiers take their places, then Herod with his soldiers, then the priests, the merchant and his wife, lastly Mary Magdalene. Afterwards, the 'dominica persona'⁴ goes alone to the shore to call Peter and Andrew, and finds them fishing. The Lord says to them, "Follow me; I will make you fishers of men." They reply, "Lord, what thou wishest, we will do." Then the Lord goes to Zaccheus, and a blind man meets him,—"Domine Iesu, fili David, miserere mei." Jesus heals him. He then bids Zaccheus descend from the tree, as he would tarry at his house.⁵ Jesus passes on.

¹ Longinus, the centurion, stood by the cross. The Gospel of Nicodemus. [II.] Longinus, the soldier, pierced Christ's side.—The Gospel of Nicodemus. [I.]

² Hoffmann, vol. 2, p. 245.

³ See p. 149; also Hoffmann, vol. 2, p. 272.

⁴ Cf. 'Figura' for the Almighty in 'Adam.'

⁵ He does not visit Zaccheus, however.

Children strew branches and garments before him, singing Gloria and Laus. Now the Pharisee invites him to dinner. He accepts, and the Pharisee urges his servants to hasten the preparations.¹

Mary Magdalene² sings in Latin of the joys of this world, and seeks the merchant with her girl companions to buy for herself ointment. The merchant offers his wares in Latin. Mary sings a German love song with the chorus:

Seht mich an, junge man,
Lâst mich eu gevallen.

She now enters the house, and an angel announces to her that Jesus, the Nazarene, who forgives the sins of the people, is dining with Simon. She rises, and again sings her song of the delights of life,—“Mundi delectatio dulcis est et grata,” etc. A lover enters, whom Mary salutes. They converse, then Mary sings to the girls:

Koufe wir die varwe dâ,
Die uns machen schoene unde wolgetâne.

She now appeals again to the merchant, who tenders his wares this time in German. The ointment purchased, she again enters the house, and the angel meets her as before, and disappears. She rises once more and repeats her song of the pleasures of the world, then falls asleep, and the angel appearing repeats his song of Jesus who forgives sinners.

Mary awakes and breaks into lamentation: “Heu vita præterita, vita plena malis,” etc.

The angel appears and says: “I declare unto you that there is joy in Heaven over one sinner that repenteth.”

Mary scorns her secular garb and lays aside her robes, putting on a black garment. The lover and the devil retire.³ She goes again to the merchant, seeking precious ointment,⁴ which the merchant sells her for a talent of gold.

The chorus sings: “Accessit ad pedes.”⁵

Mary now enters the house of Simon, and, weeping, approaches Jesus. As she anoints his feet she sings one stanza in Latin, followed by two in German. The Pharisee utters the well-known words, and Judas bewails the waste. Jesus declares the work a good one, addresses to Simon Peter his question about the debtors, asking which of those forgiven would love the more. Peter replies, and Christ announces to Mary the forgiveness of her sins. Mary, at this, retires lamenting:

Awê, awê daz ich ie wart geboren.

Jesus now departs to raise Lazarus and is met by the sisters,⁶ wailing for their brother. There is no expansion of the Biblical narrative. The incident closes with “Lazare, veni foras,”⁷ after which there is a chant by the clergy.

Judas, meanwhile, hastens to the priests exclaiming, “O Pontifices, o viri magni consilii, Iesum volo nobis tradere.” The bargain is struck, the sign is agreed upon, and the Jews follow Judas with swords and lights.

¹ This requires four stations, beginning at the sea-shore. Peter and Andrew apparently follow Christ to the house of the Pharisee. He crosses the boundary and sits down.

² Evidently rises from her place and advances to the merchant's station.

³ It would seem that the lover has been sitting in the house since his first entrance, although he has said nothing. The devil is hard to account for.

⁴ It is there supposed that some time has elapsed, and that her precious purchase is exhausted.

⁵ An evidence of intimate connection with the service.

⁶ Evidently Mary withdrew to join her sister in the Bethany station. Such examples of preparation for future situations are comparatively rare.

⁷ Lazarus probably did not appear upon the stage. The symbolic nature of this incident illustrates the intimacy existing between the symbolism of the ritual and the realism of the play. In the six lines given to the scene, three are chanted by the clergy: it is practically a leaf of the church service slipped into the drama, and seems to have satisfied author and audience, although the motived utterance, “Lazare, veni foras,” leads to no issue.

Meanwhile, Jesus does 'as is the custom at a feast.'¹ Now he takes four disciples, ascends Mount Olivet, and enacts this scene in the words of the Biblical narrative. The Jews appear, and Jesus asks: "Quem quaeritis?" They reply: "Iesum Nazarenum." Jesus replies: "Ego sum," and the crowd falls back. When he is taken, all the apostles except Peter and Judas leave him. Peter forthwith denies him twice. The priests chant appropriate Bible verses. Jesus is led to Pilate, then to Herod who clothes him in white and returns him to Pilate. The action passes on in the fewest words possible till Jesus is led out for scourging,² when he is clad in purple and crowned with thorns. Pilate says: "Ecce homo." The Jews cry: "Crucifige, crucifige eum." The dialogue in short Bible verses continues until Pilate washes his hands, and Jesus is led away for crucifixion.

Now Judas comes penitent, weeping, to the priests, who reject him. The devil appears and persuades him to hang himself.³

The women follow Jesus,⁴ weeping. He is placed upon the cross and the title affixed: "Iesus Nazarenus Rex Iudaeorum." The Jews object, and Pilate answers: "Quod scripsi scripsi."

The Virgin now enters with John and, lamenting, beholds the crucified. "Awê, awê mich hiut unde immer mê" begins the lamentation of Mary, so similar to those of earlier date.⁵ This is continued in Latin, as, smiting her breast, she addresses the weeping women. She concludes by embracing John and speaking eight lines while holding him in her arms, concluding:

Immolemus intimas
Lacrimorum victimas
Christo morienti.

The direction here reads: "Et per horam quiescat sedendo,"⁶ after which she again rises, addresses John, and John replies. Jesus now says, while John supports the Virgin: "Mulier, ecce filius tuus," and to John: "Ecce mater tua."

John and Mary withdraw from the cross.⁷ Jesus thirsts, tastes the vinegar and cries, "It is finished." Longinus appears and pierces Christ's side. Jesus cries: "Eli, Eli, lamma sabacthani," and expires. Longinus gives his testimony in Latin and German.

Vere filius Dei erat iste.
Dirre is des wâren Gotes sun,

adding,

Er hât zeichen an mir getân
Wan ich mîn sehen wider hân,⁸

while the Jews tarry to see whether Elias will come to help him, and one closes the scene with: "Alios salvos fecit, se ipsum non potest salvum facere."

An epilogue of sixteen German verses closes the play; of these Joseph of Arimathea sings the first eight, and Pilate concludes the song.

¹ Jesus must have returned to the Jerusalem station, adjoining which Mount Olivet was probably situated. This bye-play during the performance of a leading action is very rare in these early plays.

² Since the mocking, though brief, is represented, it is probable that the scourging was also.

³ Compare with the appearance of the devil in the Italian play, p. 195.

⁴ In the former play Jesus teaches the women, p. 195.

⁵ See p. 145.

⁶ This must mean that the play is suspended for a sermon, the priest explaining at once the whole mystery instead of interposing his remarks as in the Italian play.

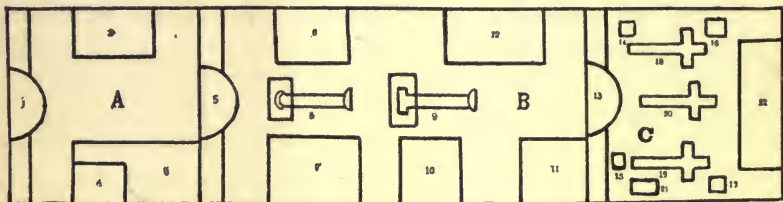
⁷ Does Mary withdraw because of the improbability of her silence during agonizing moments while others carry on the play? In the Italian play she swoons at such moments.

⁸ Compare the Italian play, p. 196.

XIII.

THE OUT-DOOR STAGE.

If we compare the above abstracts of action with the following sketch of the open-air stage of the sixteenth century, as found attached to a MS. of the fifteenth century *Easter Play*,¹ we shall obtain an idea of the use of fixed stations in the developed cycle, sufficiently clear for our purpose.

A, B, C. The three divisions of the the stage.²

- | | |
|---|---|
| 1. The first door. | 11. The house of Annas. |
| 2. Hell. | 12. The house of the Last Supper. |
| 3. The Garden of Gethsemane. | 13. The third door. |
| 4. Mount Olivet. | 14, 15, 16, 17. Graves from which the dead arise. |
| 5. The second door. | 18, 19. Crosses of the two thieves. |
| 6. Herod's palace. | 20. Cross of Christ. |
| 7. Pilate's palace. | 21. The Holy Sepulcher. |
| 8. The pillar of scourging. | 22. Heaven. |
| 9. The pillar upon which stands the cock. | |
| 10. The house of Calaphas. | |

The three divisions of the stage correspond to the three divisions of the church: the nave, choir, and sanctuary.³ The action begins in the nave, and passes, station by station, through the choir into the sanctuary. The distribution of stations bears some relation to the sanctity of the division. The cross and Heaven are in the sanctuary, Hell is in the nave. This remoteness of position was not objectionable for the *Inferno*, as it was customary for the devils to make excursions about the stage and even among the audience. This we see in the Norman play of *Adam*, *York Plays*, etc. They even acted as police within boundaries,⁴ and the unlucky wight who crossed the line became the prey of the devils, to the amusement of the audience.

In regard to the genesis of the out-door stage for the mystery plays, I cannot agree with Mone,⁵ who derives the scaffold from the

¹ Mone, vol. 2, p. 156.² Cp. Julleville, vol. 1, p. 392.³ Cp. Julleville, vol. 1, p. 393. At Rouen in 1474, paradise was in the east or sanctuary end of the church.⁴ Mone, vol. 2, p. 129.⁵ Mone, vol. 2, p. 159.

remains of the Roman amphitheater, then existing in France. This theory, as it seems to me, is founded upon two misconceptions: first, that the German plays were later than the French and borrowed from them; but we have found them of about the same date, and, while slower of development, not by any means servile imitations of the French; secondly, that the French plays were survivals of the Roman, a favorite theory with the French, but now rejected by their most careful writers, except so far as it applies to the early, unformed comedy. On the contrary, the form of the stage, its traditions and customs, point directly to the platform within the church. When the plays were taken out of the church, whether because of clerical prohibition, into which we will look shortly, or because space was too limited for the crowds and the platform, or for other reasons, the stage was simply transplanted, and suffered change no more rapidly than the developing plays demanded.

I am aware that we cannot fully solve the problem of seating such vast audiences¹ so that all could see and hear. It is very possible that all the audience did not have favorable positions. Such conditions have existed at anniversary meetings and foot-ball games without seriously diminishing the audience. Yet a familiar play, upon a platform erected in a public square surrounded by houses whose roofs² and windows would furnish a favorable outlook for many, could be seen satisfactorily by thousands.³

This stationary platform, often of great size and sometimes of three stories,⁴ with Hell beneath and Heaven above, and crowded with persons⁵ and paraphernalia, was a distinctive feature of the continental play. To this the English cycles presented a marked contrast. The gild plays of England changed the station of the continental stage into a movable pageant, or platform, and instead of calling the population of a city to the stage, rolled the platform through the streets in orderly succession from audience to audience.

¹ At Reims in 1490, it is said, there were 16,000 spectators.—Julleville, vol. 1, p. 409.

² A portion of a house, upon whose roof many people sat as spectators, fell, killing 33 men.—Hoffman, 2, p. 243, referring to Flügel, *Geschichte der komischen Literatur*, vol. 4, Th. S. 250.

³ At Lyons in 1540 one Jean Neyron erected a vast theatre with balconies and boxes, where plays of the Old and New Testaments were acted for two or three years on feast-days and Sundays.—Julleville, vol. 1, p. 357. The French, in the 15th and 16th centuries, built boxes for the aristocratic spectators and placed benches for others, at great expense, which was partly met by entrance fees.—Julleville, vol. 1, pp. 401, 405.

⁴ Not immediately over each other necessarily, but with Hell covered over at one end of the platform, and Heaven rising at the other end.—Julleville, vol. 1, p. 388.

⁵ A Resurrection Play in the library of Lucerne, MS. date 1494, employed 40 persons; one of Frankfort, date 1498, 265 persons; one of Seurre on the Saône, date 1496, 163 persons.—Mone, vol. 2, p. 123.

Of this movable stage I have found no trace upon the continent, except in the Jew plays of Italy, where, on wagon-stages drawn by oxen, the Jew in effigy was mocked, tormented, and finally burned,¹ and in the representations upon chariots, given by the Basoche in the provinces, but unknown in Paris.²

XIV.

EVIDENCES OF EARLY ITALIAN AND SPANISH PLAYS.

Such aid as the continental plays, prior to the date of the extant English plays, can give towards the study of the English cycles has, according to my knowledge, been presented ; not in its detail, which will serve better as illustration when taken with the English plays, but in the general outline, as showing the trend of development in the various stages of advancement and severance from the church ritual. Our reliance has been almost entirely upon the French and German plays. The notices of the Italian drama, prior to the "Devozioni" that we have outlined, are quickly given.

We hear of Italian plays first in 1244, the records stating that on that date a Passion and Resurrection Play was presented.³ On Whitsuntide and the two following days, in 1238, according to the chronicle of Julianus, Canon of Cividale, the Passion, Resurrection, Ascension, and Outpouring of the Holy Spirit⁴ were acted,⁵ forming a cycle of no mean proportions. But already other portions of the Bible narrative, which the church linked with the Advent plays as prophetic or explanatory of Christ's coming, were claiming attention, and six years later, according to the same authority, the Creation of Adam and Eve, the Annunciation, and Birth were played. Thus we find in Italy as early as 1306, in two cycles, probably written in Latin, and surely played under the direction or patronage of the highest clergy, the principal scenes of the future world-cycle that should extend from the Creation of the Angels to the Last Judgment.

It is evident that the mystery plays must have arisen in Italy as in France, although but scanty remains of the liturgical plays are extant ; otherwise cyclic dramas so early as 1298 would be impossible of explanation. That they also had a recognized standing in the

¹ Klein, vol. 4, p. 239.

² Julleville, *Les Comédiens*, p. 133.

³ Ebert, vol. 5, p. 51.

⁴ Evidently the Passion, Resurrection, Ascension, were considered as forming a fitting introduction to the Giving of the Holy Spirit of which the celebration was a commemoration.

⁵ Ebert, vol. 5, p. 54.

Spanish church as early as the thirteenth century is proved by the code of Alfonso the Tenth, of about 1260, which, while forbidding buffoonery plays, expressly states that "Exhibitions there be, that clergymen may make, such as that of the birth of our Lord Jesus Christ, which shows how the angel came to the shepherds and how he told them that Jesus Christ was born, and, moreover, of his appearance when the Three Kings came to visit him, and of his resurrection, which shows how he was crucified and rose the third day."¹ It adds, however, that these should be in the cities under the eye of the bishop or archbishop, not in the villages, nor to gain money thereby.

But in Spain, through adverse circumstances, the development of the play was arrested, and when at last, in 1496, the early dramatic type for Spain was set by the Representaciones of Enzina,² its direct inspiration was the Latin pastoral rather than the liturgical drama.

In Italy, on the contrary, the influences were favorable. Commercial cities and wealthy patrons fostered literature. Monasteries and religious brotherhoods lavished wealth upon their Rappresentazioni, in some respects, it must be confessed, to the injury of the plays, since their prodigal expenditure encouraged spectacular effects to the detriment of dramatic power.

In brief, then, as we turn to the more specific problem of the English plays, we shall look to Spain for little assistance, to Italy for much; but our most important aids will be found in Germany and France. The French church plays furnished the models for the liturgical plays of England. The German plays will afford most instructive illustrations of the gradual intrusion of the Teutonic humor, so evident in the York and Woodkirk Plays.

The universality of tradition in ecclesiastical literature gave rise to uniformity of treatment, and to the choice of similar, oftentimes of the same, literary motives, throughout the Roman church. The result may be monotonous as literature, but is invaluable as supplying a common starting point for national literatures. Upon this material the folk-spirit impressed its individuality. In the changing treatment and interpretation we detect the compelling influence of successive phases of thought. From this vast store-house, as from a quarry, the later generations have selected according to their needs and fashioned according to their taste. Here the students of modern literature stand on common ground, and, viewing each several stream on its divergent course, can take note of each deflection due

¹ Ticknor, vol. 1, p. 230.

² Ticknor, vol. 1, p. 245.

to a foreign cause, of each break or eddy that betokens the vexation, dubiety, or sudden illumination of the national life that lies at the bottom of, and is faithfully mirrored in, every literature worthy of the name.

XV.

THE ATTITUDE OF THE CLERGY TOWARD THE PLAY.

There still remain for our consideration, before we turn to England, the question of the divorce of the play from the church, and that of the status of the writers of these later plays, whose number is legion and whose prolixity¹ appals the reader.

The writers upon mystery plays agree with great unanimity that the plays were driven out of the churches by the disapproval of the higher clergy. It is stated that the introduction of lay actors, of the vernacular speech, and, above all, of burlesque and comic episodes, scandalized the devout and provoked the prohibitions of popes and councils. It seems to me that the statement is true only in a much narrower sense.

In the first place the plays did not leave the churches,² but, in their less developed ritualistic form, remained a part of the service until the Reformation, and indeed in many countries or sections long after. The people delighted in pageants, masques, and shows of every kind, and the church did not yield its right to make the service attractive by tableau, puppet-show, and liturgical drama, although such plays received comment less often than the open-air plays.

If, then, these plays survived in the churches, it must have been understood that the clerical prohibition was not directed against every species of mystery play, for no play within the church could have withstood for centuries the uniform opposition of the higher clergy. A glance at the attitude of the church toward plays before the mystery arose may aid us in understanding the situation, for the Roman church has usually kept in touch with its earlier traditions.

From the beginning of the third century, when Tertullian wrote his *De Spectaculis*, until the tenth century, the church held con-

¹ The history of Joseph in the 'Viel Testament' fills 7000 verses. Les Actes des Apôtres, par Arnoul et Simon Greban, is given in 61,908 verses. The *Mystère de Sainte Marguerite* contains 10,000 verses.

² Julleville, vol. 1, p. 78.

sistently a condemnatory attitude. In 610, at the second council of Braga, so in 813, and again in 816, the councils spoke in no uncertain tone. They condemned absolutely the performances of the *Histriones*, *Musici*, and *Mimi*. These continued the traditions of the Roman stage, which had adopted the Greek drama of intrigue, and exhibited realistically what the earlier drama had but insinuated. The Fathers use clear language, and show unmistakably that they condemn these because they teach immorality and all manner of iniquity. Indeed, St. Augustine carefully makes a distinction between the mimes and the comedies and tragedies, "the latter class being at least free from filthy language, while their study is approved by elders in their scheme of liberal education." The plays of the day pandered to the lowest imaginations of man. The classic drama had been relegated to the closet. The attitude of the broader-minded of the clergy—of those who did not consider all mental activity a sinful waste when not devoted to the offices of the church—was a reasonable one, distinguishing between lasciviousness of motive and salutary instruction and diversion by theatrical representation.

We have seen¹ that these licentious and comic plays survived until the time of the mystery, and that in France they formed a partial fusion with the sacred drama, giving rise to certain abnormal developments, such as the Feast of the Ass. When, therefore, we find the church condemning certain plays and classes of actors under the names of *histriones*, *joculatores*, etc., it is necessary to infer that the same classes of play and actor are meant as aforetime, that their intrusion into the church is reprobated, and that mystery plays that have the taint within them are condemned.

In the northern countries, as in France, the popular festivities of the national holidays continually sought expression within and about the church edifice. The church had made itself the centre of all communal interests, so with the quickening of the national spirit an expression was sought within the walls of the church home. But this brought irreverence and indecorum. The hobby-horse in England, the *Schimmelreiter* in Germany and other '*monstra lavarum*'² must keep out of the churches. This will explain various interdicts, and will serve to show how in the Middle Ages many a distinction

¹ See p. 166.

² In a MS. of the twelfth century at Strasburg is a drawing of a '*Ludus monstrorum*;' it is a puppet-show. For the use of monsters, dragons, giants, etc. in religious processions see Magnin, *Histoire des Marionnettes*, pp. 61, 66, 213.

was made of which we lose sight because our knowledge of their life is vague and general.

The primary cause for the departure of the play from the church must, as it seems to me, be sought for elsewhere. We have studied the gradual expansion within the church of the mystery from the rudimentary play of the ritual to the independent but condensed cyclic play. Either development must stop here or the play must leave the church. The nave could not contain the necessary stage, nor the edifice the audience. Great numbers brought confusion and disorder. As a consequence the play moved out of the church into the churchyard, as shown in the Norman play of Adam, or into the open space about the monastery, as the direction "*ad januas monasterii*" of the Orleans play¹ indicates.

Other motives, as is usual, emphasized a tendency. The longer play led to the introduction of interludes and comic scenes to relieve the tedium. The development of devil-play put upon the fiends, through the traditional license of devilish behavior, the onus of enlivening the people when wearied by the continued play. Their language might be plain, and to us blasphemous, but it was not lascivious, and often contained a telling moral lesson. If we make allowance for the frank realism of the day, we must accept these plays as devout in nature, with the purpose to instruct the people and promote religion. Therefore the priests could encourage them, take part in them, or write them. They could be made the vehicle for sermons upon morals of which the instances, especially in English plays, are many, and the papal benediction could be sought and given, as was, probably, the case with the Chester plays.²

Furthermore, as the commercial spirit grew, the concourse of people at the church on sacred festal days offered facilities for barter, and booths became fairs. These festal days were also the days of the mystery play, and thus in England a connection between play and fair was established; not, as Warton maintains, that the play was fashioned to draw to the fair, but fair and play depended upon the church holy day. No one will doubt but that merchants and monks were shrewd enough to turn both to their advantage, when once the connection was established.

¹ P. 175.

² The text of prohibitions is given by D'Ancona, *Origini del Teatro in Italia*, vol. 1, p. 51. Hoffmann, vol. 2, pp. 241-4; Mone, vol. 2, pp. 367-8; Wright, p. XII, taken from Hoffman. The subject is discussed in Smith's *Dict. of Christian Ant.* under *Theatre*, *Actor*, closing, however, before the rise of the mystery; Prynne's *Histrio-Matrix* is important for clues, but the author's bias must be borne in mind.

XVI.

THE PUY.

The agencies that took part in the composition and representation of the plays, after they ceased to be liturgical, are many. As has been shown, the church did not take an attitude of opposition unless certain objectionable features were present.¹ Therefore monkish and other religious authors often wrote plays,² and even acted leading roles.³ Again, monasteries often bore the burden of presentation. This was most frequently the case in Italy.⁴ The religious brotherhoods⁵ that spread over Catholic Europe as early as the twelfth century were oftentimes the promoters of the mystery play. If, as seems probable, the craft guilds had a religious origin,⁶ or assumed functions akin to those of religious brotherhoods, their connection with the play is easily understood. Through connection with the craft guilds the Meistersänger of Germany also shared in the developmental history of the drama. Indeed, Mone attributes the downfall of the mystery in Germany—though probably other agencies were more potent—to the prolixity of the Meistersänger plays, involving the introduction of so many actors and so much machinery that the unskilled craft players could not successfully present the action.

In France, the Puy, that shadowy literary academy of the Middle Ages, was the immediate successor of the clergy.⁷ These Puy, semi-religious, semi-literary, were very numerous in the West and North of France. During the eleventh and twelfth centuries they were devoted to the service of the Virgin, and the members composed verse in her honor, but in the thirteenth century the influence of the lay members led to a broader literary life, and they cultivated zealously the religious drama. To some Puy the cycle of Notre Dame is attributed. In the Puy d'Arras, it is believed, the comedies of Adam de la Halle were played. These literary societies, about the fifteenth century, turned to other lines of literary activity, to morali-

¹ In France, the play passed from the hands of the clergy in the twelfth century, but they were interested in it even in the fifteenth century.—Julleville, vol. 1, p. 347.

² Julleville gives sketches of the eighteen known authors of French mystery plays. Among these there were nine religious or ecclesiastical authors, one lawyer, one notary, one physician, two valets de chambre, and one princess.—*Les Mystères*, vol. 1, p. 314 ff.

³ Julleville, vol. 1, p. 367.

⁴ Ebert, vol. 5, p. 56.

⁵ Compagnia de Battuti of Treviso established 1261, Ebert, vol. 5, p. 52. Compagnia del Gonfalone of Rome, Hase, p. 18, and Ebert, vol. 5, p. 53. Brethren of St. Luke of Antwerp, artisans, Hase, p. 18.

⁶ Wilda, *Gildenwesen im Mittelalter*; also Gross, *Gild-Merchant*, p. 175.

⁷ Julleville, vol. 1, p. 115 ff.

ties, farces, chansons, chants royaux, etc., the mystery falling to the various societies of confrères of which the Confrères de la Passion, of Paris, was the most famous. The sources and makers of the English plays will be the subject of the following chapters.

XVII.

PAGEANTRY IN MEDIAEVAL ENGLAND.

As we enter the English field, we are confronted by a confusion of names that is bewildering. It would seem as though writers classed everything from a wrestling bout to a mystery as a play. Some do not hesitate to affirm that pageant and play were synonymous terms.¹ So little regard has been paid to classification by such writers as Warton, Collier, and Ward, that the student cannot trust their conclusions, but must patiently gather his data for himself at first hand, and classify them as his conception of the mediæval life of England becomes clearer. Gradually he will perceive that society in that day was a great stickler for tradition, that the custom found in a given city in one century probably existed there in but slightly altered form in the next century, that the customs in a given city were many and various, and were, within certain limits, sharply defined and kept separate. England was, indeed, Merrie England in those days, but she went about her amusements as though they were very serious, and usually very thirsty, business.

It would take me too far from my theme to attempt to describe all the shows and plays that formed part of a city's life for even one year. The royal entries, the ridings of different social or religious gilds, the church processions in which the laity took part with their pageants of tableaux, their giants and monsters, the plays in the churches, by the craft gilds, at the entertainment of notables, the setting of the watch, the May-day festivities, etc., if faithfully portrayed for a single city, would fill a thesis, and give a new and valuable picture of civic life. If to this we add the direct literary influence of France upon the nobility and court society of England at a time when England and a large part of France were politically one, the subject of amusements in mediæval England assumes vast proportions and becomes exceedingly intricate. As a result, writers upon this subject have failed to observe distinctions that were clear

¹ Collier says that in 1502 pageant was only another name for a play.

to the people of that day, and, still further misled by the frequent use of a single favorite name for different species of amusements, have included in their discussion of mystery plays¹ much that was but indirectly related to the matter in hand. It becomes, then, our task to attempt to disentangle some threads, and to segregate the plays of the craft gilds which were presented on movable scaffolds, or pageants, from the multitude of similar but not closely connected phenomena.

I. *The Puy and the Gild of Parish Clerks in London.*

We have noted in France the rise of the Puy, and its position as a cultivator of the mystery. England at this time contained many French ecclesiastics, and it would not be surprising if we found, where sufficient numbers were congregated, something similar to the French Puy on English soil. The following points of similarity seem to me to establish at least a strong presumption in favor of kinship between the Puy and the Gild of Parish Clerks in London.

These are characteristics of the Puy :

1. Date, the eleventh and twelfth centuries.
2. In the thirteenth century admitted lay members.
3. In the thirteenth century cultivated the mystery.²
4. In the fifteenth century abandoned the mystery.
5. Was dedicated to the Virgin.
6. Object, the cultivation of literature, probably music also, and sometimes had philanthropic features.
7. Most numerous in the West and North of France.
8. Often formed of parish clerks with or without lay members.³
9. Sometimes given to playing in honor of Saint Nicholas.⁴

These are the characteristics of the Gild of Parish Clerks :

1. Incorporated as a gild by Henry III about 1240.⁵
2. Formed of ecclesiastics and lay members.⁶
3. Object, the cultivation of church music and literature.⁶ It had, also, philanthropic features.⁶

¹ Collier, vol. 1, p. 52, considers what was probably a French shepherd play presented before the Queen, a French woman, a mystery play.

² The Miracles de Notre Dame in the fourteenth century were the work of a Puy.—Julleville, vol. 1, p. 120.

³ The Puy de l'Assomption at Douai was formed about 1330 under the name of the Confrérie des Clercs Parisiens, called 'clerks parisiens' because they spoke French.—Julleville, vol. 1, p. 119.

⁴ As the Saint Nicholas of Jean Bodel of the Puy d'Arras.—Julleville, La Comedie, p. 27.

⁵ Hone, p. 208.

⁶ Survey of London, ed. 1842, p. 64.

4. Dedicated to Saint Nicholas.¹
5. Played stationary plays at Skinner's Well.²
6. In 1390 a three days' play at Skinner's Well.³
7. In 1409 an eight days' play at Skinner's Well.
8. Plays attended by most of the nobles and gentry of England.
9. In 1554, feast at Guildhall College, with singing, playing, and the next day a great procession.⁴

Among the points to be considered are the following :

I. The social or religious gilds of England are, in general, a century later in origin. Thus, to cite a few illustrations—

1327. Fraternity of Corpus Christi in Skinner's Company in London.⁵
1348. The Gild of Corpus Christi at Coventry.⁶
1358. The Gild of Corpus Christi at Kingston-upon-Hull.⁷
1355. The Gild of St. Mary at Beverly.⁸
1378. The Gild of St. Elene at Beverly.⁹

II. Their plays followed continental, not English, traditions.

- a. They were stationary plays as were all the plays of France.
- b. They continued three and eight days, as did the continental plays.
- c. They were especially patronized by the nobility.

One might venture to say that they were probably in the French language.

III. The most marked discrepancy is that touching the patron saint. On the continent the Virgin seems to have been universally adopted, but the Puys later did not hesitate to write in honor of St. Nicholas, and, finally, after the opening of the fifteenth century, to cultivate profane poetry.

II. *The Royal Entry.*

Nothing illustrates better the community of custom and literary standards among the nobility of England and France than the ceremonies observed when the King, or a high church or state official, entered a city. Indeed, we need not limit our study to England and France, as the same customs obtained in the Netherlands and in Scotland. Two elements of the royal entry concern us here, the pageants and the 'riding.'

¹ Hone, p. 208.

² Survey of London, p. 7; given as 1391, p. 38.

³ Survey of London, p. 143; given as 1490 by Hone, and 1407 by Pollard.

⁴ Strype, vol. 3, chap. 13, p. 121; given as 1651 by Hone.

⁵ Herbert, vol. 2, p. 299.

⁶ English Gilds, p. 232.

⁷ English Gilds, p. 161.

⁸ English Gilds, p. 149.

⁹ English Gilds, p. 148.



These pageants were originally stationary, mute mysteries, placed upon stages of elaborate construction along the route which the King would take within the city. That these shows should be stationary is reasonable, since in such case the King and his retinue need be detained no longer than they wished. That they should be mute, though usually indulging in pantomimic action, is more strange, but of the fact there is abundant evidence. It will aid us to understand the progress from pure mystery to allegory, if we consider somewhat at length these mute mysteries.

1313. A mute play of the history of Jesus Christ from Nativity to Passion was exhibited at Paris before Edward II and his wife Isabella.¹

1377. At the coronation of Richard II, a castle was erected by the goldsmiths on Cheapside. Of the pageants exhibited two are described by Herbert.²

1420, Dec. 1st. In the entry of Charles VI and Henry V into Paris, a mute mystery, consisting of stationary pageants representing a connected story, the Passion of our Savior, was shown,—a bas-relief of living figures counterfeiting a bas-relief of stone.³

1424, Sept. 8th. The pageant at the entry of the Duke of Beaufort into Paris was described by an eye-witness in these words :

“Devant le Chastelet, avoit ung moult bel mystere du Vieil testament, et du Nouvel, que les enfens de Paris firent ; et fut fait sans parler ne sans signer, comme ce feussent ymaiges enlevez contre ung mur.”⁴

1430. At the entry of Henry VI into London there were many stationary pageants, some with verses attached and some where personages spoke.⁵

We have passed over a century, recording here and there one of the royal entries. All are alike, stationary, mute, and representations of some portion of the Bible story. I find earlier a curious exception, as though uniformity of custom had not established itself prior to 1300.

1293. To welcome Edward I upon his return from Scotland, the London Gilds held a procession, with what appears to have been moving pageants indicative of trade.⁶ But very early in the fourteenth century the type became fixed, and we find little variation until the time of Henry VI.

Before 1430 the pageants had been taken from the Bible story, and were easily recognized by all in their conventionalized form,

¹ Julleville, vol. 2, p. 188.

² Herbert, vol. 2, pp. 217, 221.

³ Julleville, vol. 2, p. 189.

⁴ Julleville, vol. 2, p. 190.

⁵ Fabyan, pp. 603-7.

⁶ Herbert, vol. 1, p. 89.

but now we find that other subjects are crowding in, breaking the sequence of the story, and rendering some designation necessary to interpret them to the beholder; for this reason verses were attached.

But when the necessity of choosing a Biblical theme was no longer present, the artist naturally selected some subject that would be complimentary to the high personage in whose honor the pageant was set up. Affixed verses he could not easily read, so the complimentary address to the King arose, or a laudatory conversation was carried on between actors. This is approaching very near to the borders of the spoken drama, but I have found no instance of royal entry where a genuine, spoken drama was acted. Further, it would seem that this development of the pageant arose earlier in England than in France.

1431, Dec. 2. Of the entry of Henry VI of England into Paris this description is given :

“Depuis le poncelet en tirant vers la seconde porte de la rue Saint Denis avoit personnages, sans parler, de la nativité Notre Dame, de son mariage et de l'adoration des trois Rois, des Innocents¹ et du bonhomme qui semoit son blé.”

1432. Entry of Henry VI into London after his coronation at Paris. Allegorical pageants with verses by Lydgate.²

1445. Entry of Queen Margaret into London. Seven pageants with verses by John Lydgate.³

1461, Aug. 31. Entry of Louis IX into Paris,—“y avoit une passion par personnages et sans parler, Dieu estendu en la croix, et les deux larrons a dextre et a sinistre.”⁴

1461, Sept. 20. Entry of Louis IX into Orleans. Twelve pageants, stationary, laborers, moral virtues, David and Goliath,⁵ etc.

1498, July 2. Entry of Louis XII into Paris. All the pageants were allegorical except those of the Confrères de la Passion who presented The Trinity, Abraham's Sacrifice, and the Crucifixion.⁶

So, fifty years after London, Paris bows to the popular demand for allegory.

1514, Nov. 6. Entry of Mary of England into Paris.

1515, Feb. 15. Entry of Francis I into Paris.

1517, May 12. Entry of the Queen into Paris. In these three the subjects were allegorical.⁶

1521. Entry of the Emperor, Charles V, into London.

¹ Julleville, vol. 2, p. 191, quoting Enguerrand de Monstrelet.

² Fabyan, p. 603, fol. 190.

³ Stow, p. 385.

⁴ Julleville, vol. 2, p. 196.

⁵ Julleville, vol. 2, p. 201.

⁶ Julleville, vol. 2, pp. 205-6.

The London Drapers resolved to have no Midsummer pageant, because there were so many pageants ready standing for the Emperor's coming into London, but they afterwards agreed to renew the old pageants and to establish a new one of the Golden Flees, also to bring out their giant, Lord Moryspys,¹ and to present a morys dance.²

This item furnishes us one clue to the absence of plays by the craft guilds of London. The royal entries called for frequent and costly pageants from the gilds. These pageants were preserved, and refurbished when occasion demanded them. A cursory reading of the gild accounts shows that the pageants and ridings were felt as a heavy tax,³ though a necessary one, and make it reasonable that the gilds, having these pageants on hand, should be reluctant to build movable pageants also for Corpus Christi and other religious or civic festivities. They accordingly used their stationary pageants, as the Drapers did in the Midsummer festival.

1577. Visit of the Prince of Orange to Ghent. Tableaux vivants, allegorical, with address to the Prince.⁴

1578, Jan 18. Entry of Governor-General Matthias into Brussels. Tableaux vivants, allegorical, stationary.⁵

1595. Entry of the Archduke Ernest into Antwerp. Allegorical pageants.⁶

The pageants of these three entries mark the decay of pageantry. After the allegorical and complimentary pageant had established itself, there naturally followed on the part of the artists a straining for striking effects and quaint conceits. All sense of unity was lost, and mysterious or grotesque representations, that would make the vulgar gape, became the fashion. The custom had become absurd, and was out of place in the new life that was stirring the hearts of men. Our latest item knits the old to the new.

1603. Entry of James I into London. Ben Jonson's pageant 50 feet high and 50 feet long, a representation of the city of London, with verses attached.⁷

¹ These giants were a necessary adjunct to a display. They were sometimes stationary, more often movable. Gog-magog and Corinaeus, otherwise called Gog and Magog, now at Guildhall, are relics of the olden time.—Hone, pp. 262-270; also Magnin, p. 61; also Fabyn, p. 603.

² Herbert, vol. 1, p. 455.

³ Canterbury, as a halting place *en route* for the continent, would have suffered a heavy tax for pageantry, but avoided it by entertaining outside the city walls,—in a booth erected for the purpose and stocked with victuals and liquors if the halt were for refreshment, in a monastery if a night's lodging were desired. See Ninth Report of the Royal Commission on Historical MSS.

⁴ Motley, vol. 3, p. 295.

⁵ Motley, vol. 3, p. 305.

⁶ Sharp, a cut of a pageant is given, pp. 24, 25.

⁷ Sharp, p. 4.

We close with a description of a royal entry, Queen Margaret's entry into Aberdeen in 1511, as given in Dunbar's 'The Queine's Reception at Aberdeen.'

1. The burgesses ride out to meet her—

And first Hir mett the burgess of the toun,
 Richelie arrayit as become thame to be,
 Of quhom they chesit four men of renoun,
 In gounes of velvot, young, abill, and lustie,
 To beir the pail of velvet cramasé,
 Above Hir heid, as the custome hes bein.

2. The Procession meets her at the gate.

Ane fair processoun mett hir at the Port,
 In cap of gold and silk, full pleasantlie.

3. In the first streets were many pageants.

Syne at hir Entrie, with many fair disport.
 Ressavit hir on streittis lustilie.

(a) The Salutation.

Quhair first the Salutation honorabill
 Of the sweitt Virgin, guidlie mycht be seine;
 The sound of menstrallis blowing to the sky.

(b) The Magi; The Three Kings of Culane.

And syne thow gart the Orient Kingis thrie
 Offer to Chryst, with beuying reverence,
 Gold, sence, and mir, with all humilitie,
 Schawand him King with most magnificence.

(c) The Expulsion from Eden.

Syne quhow the Angill, with sword of violence,
 Furth of the joy of Paradice putt clein
 Adame and Eve for innobedience.

(d) The giant Emperor, Bruce.

And syne the Bruce, that evir was bold in stour,
 Thou gart as Roy cum rydand under croun,
 Right awfull, strang, and large of portratour,
 As nobill, dreidfull, michtie campploun.

(e) The Stewarts.

The (nobill Stewarts) syne, of great renoun,
 Thow gart upspring, with branches new and greine,
 So gloriouslie, quhill gladdid all the toun.

4. After the pageants twenty-four maidens singing.

The matter is summed up in—

The streittis war all hung with tapestrie,
 Great was the press of peopill dwelt about,
 And pleasant padyheanes playit prattellie.

The connection of the tableaux of pageantry with mediæval painting and sculpture would form an interesting and fruitful investigation, but would carry us too far afield.

For the 'ridings' a word will suffice. As the burghers of Aberdeen met Queen Margaret without the city walls, so selected members of each gild in other cities went out wearing their liveries and bearing their banners,¹ and, riding two and two, escorted the king or other dignitary into the city and over the designated route to the palace where he was to lodge.

The Processions.

The Christian church probably held processions from the first century.² These multiplied in the Middle Ages and modified greatly many other customs. Thus the royal riding and the procession simulated each other, and were sometimes combined especially in England in the Procession of St. George.³ Indeed, in many places this ceremony was known as 'Riding the George.'⁴ Many processions after the thirteenth century contained one or more pageants. These were carried on moving pageant wagons, but sometimes, in place of the pageant, groups⁵ afoot personated characters. Of moving pageants the best illustrations are afforded by the Lord Mayor's Show in London. Thus, the pageant of the Assumption was borne before the new Lord Mayor from the Tower to Guildhall,⁶ and later, when allegorical devices were in vogue, many elaborate pageants were devised, of which the descriptions have been preserved.⁷ Of those where individuals walking personated characters, we notice the Whit-Monday procession at Leicester, where the Virgin Mary was carried as a pageant and the twelve apostles walked,⁸ and the pageant groups at Aberdeen.⁹ The pageantry was sometimes very elaborate, as at Dublin in the Procession of St. George,¹⁰ which presented the Emperor and Empress attended by two doctors, two knights and two maidens; St. George who received three shillings

¹ Herbert. (a) The gilds of London bore banners of trade at the coronation of Henry IV, 1399, vol. 1, p. 90.

(b) The order of gilds of London in royal entries, vol. 1, pp. 101-2.

(c) A cut of the procession, vol. 1, p. 129.

(d) The citizens of London met the king at Blackheath, vol. 1, p. 91.

² The procession was greatly developed by St. John Chrysostom.

³ The Gild of St. George, Norwich, had a pageant with a 'riding' in procession.—English Gilds, p. 447.

⁴ As at Leicester, Kelly, p. 38.

⁵ These groups oftentimes contained beasts of wondrous shape, formed of hoops and canvas or wicker-work.

⁶ Herbert, vol. 1, p. 457.

⁷ There are in print thirteen pageants of the Drapers, eleven of the Grocers, and many produced by the other companies during the years from 1588-1691. They bear the names of Thomas Middleton, Thomas Jordan, Thomas Heywood, etc., as authors.—Herbert, pp. 334, 459-61.

⁸ Kelly, p. 7.

⁹ See p. 222.

¹⁰ Hist. of Dublin, vol. 1, p. 109.

four pence for his labor; standard, pole-ax, and swords for the Emperor and St. George; then a maiden who led the dragon by a golden line; four trumpets; the King and Queen of Dele, accompanied by two knights and two maidens in black.¹

III. *The Corpus Christi Procession.*

The most splendid of all the church processions was the Procession of Corpus Christi, out of which grew in many cases² the craft-gild plays. The church fast of Corpus Christi was instituted by Pope Urban IV about the middle of the thirteenth century, 1264, and appointed for the first Thursday after Trinity Sunday. It was endorsed by the Council of Vienne in 1318, and was soon celebrated with great pomp throughout Western Europe. Its office consisted of hymns, anthems, responses, etc., taken from the figurative portions of the Old Testament, and selected, or, at least, digested into form by Thomas Aquinas. From the first the leading feature of the celebration was the procession of the ecclesiastics and laity, in which all civic bodies took part, with tapers, banners, shields of the gilds, and after a time with pageant-tableaux and individuals personating characters at first Biblical, later oftentimes legendary. In the procession the lay societies preceded the host, which was followed by the ecclesiastics.³ The position next to the host was the place of honor, and we read of many disputes among the gilds about their relative positions.⁴ This order of the gilds is a matter of importance to us, as the earliest order of the gilds in the craft-gild plays was doubtless the same as in the procession. Thus in many towns the Mercers, as the most powerful gild, marched next the host—so in York and Coventry—and the Mercers stand last in the York plays.

¹ The Gild of St. Elene at Beverly, founded 1378, carried a youth clad as St. Elene. An old man preceded him carrying a cross, and one followed bearing a shovel. The Gild of St. Mary at Beverly, founded 1355, carried in procession on the feast of the Purification a pageant of the Virgin with what seemed a son in her arms. Joseph and Simeon accompanied her, with two angels carrying a candle-bearer of twenty-four lights.—*English Gilds*, pp. 148, 149.

² At York and Coventry, the Chester plays were connected with the Whit-Monday procession.

³ Sharp, p. 165. The order was, however, reversed at York.—*Davies, York Records of the XVth century*, p. 247; also in *Skinner's Procession*, p. 60.

⁴ 1538, June 21. In records of Aberdeen complaint of hammermen that others usurp their place in the Corpus Christi procession.—*Records of Aberdeen*, p. 452.

1554. Another complaint by the same. p. 457.

See the quarrel between the Weavers and Cordwainers of York. The Cordwainers refused to march on the left of the Weavers. This difference was a matter of some years' standing, and the Cordwainers submitted only under the pressure of a heavy fine and the threatened interference of the king.—*Davies*, pp. 250-7.

At first, presence in the procession may have been considered evidence of acceptance of the dogma of transubstantiation,¹ to which, as we have seen, the rise of the liturgical play was due;² but later the spontaneous expressions of piety did not satisfy the desire for a splendid procession. Accordingly in the fourteenth century the Gilds of Corpus Christi arose, which took the procession under their special care. These gilds did not usually foster plays, and were indeed in some cases necessary to preserve the splendor of the procession after the popular interest had turned from the procession to the plays.³

How early pageant-tableaux were introduced it is impossible at present to state,⁴ but it must have been at an early date and in close connection with the royal entry. The body of Christ received in a sense royal honors, and it may be that at first stationary pageants, a marked tribute to royalty, were sometimes used. It seems evident that movable pageants were carried by the gild in connection with the gild banner, and usually bore the insignia or arms of the gild; also that at first they presented a connected Biblical story, but afterwards passed through nearly the same developmental stages as did the pageants of the royal entry. These changes, like those of the royal entry, were in the main the same throughout Western Europe, although the intrusion of the civic element doubtless contributed to local variations. The records do not enable us to trace these changes so clearly as in the royal entry, but certain evidences are found.

1437. The village of Draguignan gave a florin to the manager of the procession, "A cause du jeu que chaque année il a contume de faire à faire à la fête du corps du Christ, et qu'il ne peut faire sans aucun subside."

Similar entries in the records of the village occur until 1558, May 8, when the following explanatory note is found:

"Le dit jeu jora avec la procession comme auparadvant et le plus d'istoeres et plus briefves que puront estre seront et se dira tout en cheminant sans ce que personne du jeu s'aresté pour éviter prolixité et confusion tant de ladite procession que jeu et que les estrangiers le voient aisement."⁵

This attempt to talk while walking could hardly have been a success. The spoken play was probably oratorical rather than dramatic. These so-called plays were maintained until 1615. There are records of similar exhibitions at Bethune from 1544. In the 'remonstrance' of 1549 there is a list of the tableaux, showing the participation of

¹ English Gilds, p. LXXXV.

² See p. 137.

³ As at York, though so great was the passion for plays that the Gild presented one, the Creed play, once in ten years.

⁴ Davies, p. 228.

⁵ Julleville, vol. 2, p. 209.

the trades, and furnishing conclusive evidence that these were not spoken plays, but mute, whether with or without action I cannot determine.¹

Early in the fourteenth century gilds of Corpus Christi began to rise in England. The fraternity of Corpus Christi of the Skinners of London dates from 1327.

"This fraternity had also once every year, on Corpus Christi day afternoon, a procession which passed through the principal streets of the city, wherein was borne more than one hundred torches of wax (costly garnished) burning light, and above two hundred clerks and priests, in surplices and capes, singing. After the which were the sheriff's servants, the clerks of the compters, chaplains for the sheriffs, the mayor's sergeants, the counsel of the city, the mayor and aldermen in scarlet, and then the Skinners in their best liveries."²

1348. The Gild of Corpus Christi at Coventry was instituted. It was to carry eight torches about the body of Christ in procession.³

1349-50. The Gild of Corpus Christi of Leicester, which contributed to the most splendid procession in the city except that of St. George.⁴

1408. The Gild of Corpus Christi at York, which, after the separation of procession and plays in 1426, became responsible for the procession.

Before 1349. The Gild of Corpus Christi at Cambridge, which held a procession with pixies and shields until 1535, when Dr. Leigh, deputy to Lord Cromwell, ordered it abrogated.⁵

As at York so at Coventry, it became necessary to separate the procession from the plays. At York this was done by appointing the vigil of Corpus Christi⁶ for the plays; at Coventry by bringing the procession early in the morning.⁷

It seems, then, that shortly after the confirmation of Corpus Christi in 1318 pageants of the Biblical story were introduced in conjunction with the banners of the crafts. These at first were mute mysteries expressed by action. In a short time, however, spoken drama, found also in isolated cases in France, became an established custom in England. A spoken drama necessitated frequent halts by the procession, as it was impossible to act satisfactorily in motion. Indeed, connected pantomimic action would seem impossible in a moving procession; therefore this custom may be older than the spoken drama. These halts prolonged the procession beyond reasonable limit, and were avoided by transferring the pageants to the rear of the procession. A division of the procession immediately arose through the slower movement of the pageants, but the plays, though much belated, followed the traditional course

¹ Cp. p. 222.

² Survey of London, p. 87.

³ English Gilds, p. 232.

⁴ Kelly, p. 36.

⁵ Masters, p. 80.

⁶ The citizens, however, continued to hold their plays on Corpus Christi day, and the clergy were compelled to postpone the procession until the morrow.—Davies, p. 244.

⁷ The description of the Corpus Christi procession as given in the Popish Kingdom illustrates the demoralization of the pageantry.—Sharp, p. 170.

of the procession through the city. Such seems to be a reasonable interpretation of the facts as presented by the records.

The Prevalence of Craft Cycles.

To the student of records it soon becomes evident that the guilds considered their plays a great financial burden, though one that was usually borne willingly. The account books contain frequent items of expenditure for the plays; the regulations provide for the payment of pageant money by every member of the guild. These plays were a matter of moment also to the city authorities, whose records abound in regulations concerning them, penalties to be laid upon every craft, owning or contributing to a pageant, that does not faithfully discharge its trust. Repeatedly they are said to be to the city's honor and profit, showing that the authorities were not unconscious of the advantage to trade arising from the influx of strangers. Frequently, especially at York, a guild that has become weak is released from the charge of a pageant, and made contributory to one according to its ability. So numerous are the references to the plays in the records of city and guild that I cannot but think that silence on the part of the records in any city is proof that such plays were not maintained in that city.

It is necessary for an understanding of the mutual relationships of these cycles of plays to segregate the guild plays from the multitude of occasional plays and processional shows with which the time abounded. Fortunately, the task of cataloguing the towns that maintained such plays is greatly lightened by a list formed by Miss Lucy Toulmin Smith and published in her edition of *York Plays*,¹ and reprinted by F. H. Stoddard.² This list may include all the towns, though we do not know what further study of town records may bring to light. It surely contains many plays that are not guild plays, and it becomes necessary by a process of elimination to determine what are true craft plays.

¹ pp. LXIV-LXVIII.

² Stoddard.

NOTES ON THE PUBLISHED LIST OF PLAYS.

I. "Aberdeen, 1442-1531. [Candlemas play, Offerand of Our Lady; also Corpus Christi play, 9, 7, 10 pageants named.]

1440, May 13. Notice of appointment of one Richard Kintor,¹ Abbot of Bon-Accord, and notice of play of Halyblude at Wyndmyhill.² not

1442. Thir craftes underwritten sal find yearly in ye offerand of our Lady at Candlemas thir personnes underwritten, yat is to say :—

[1442. Aberdeen Pageants.⁴]

The Littistaris sal fynd,
The Empriour and twa Doctouris and alsomony honeste Squiares as thai may.

The Smythis and Hamermen sal fynd,
The Three Kingis of Culane and alsomony honeste Squiares as thai may.

The Tal3oures sal fynd,
Our Lady, Sancte Bride, Sancte Helene,
Joseph and alsomony Squiares as thai may.
The Skynnares sal fynd
Twa Bischopes, four Angels, and alsomony honeste Squiares as they may.

The Wobstares and Walkares sal fynd
Symion and his disciples and alsomony honeste Squiares, etc.

The Cordonares sal fynd
The Messyngear and Moyses and alsomony honeste Squiares, etc.

The Fleschowares sal fynd
Twa or four Wodmen and alsomony honeste Squiares.

The Brethren of the Gilde sal fynd
The Knyghtes in harnace and Squiares honestly arait, etc.

The Baxtaris sal fynd
The Menstrals and alsomony honeste Squiares, etc.

1549. Bethune Pageants.³

Lingiers. L'Annonciation, 2 personnes.
Vlessiers. La Visitation, 2 personnes.
Tanneurs, cordouaniers. LaNativité, 5 personnes, Les trois Roix, 6 personnes.
Chavettiers. Les Innocents, 12 personnes.
Parmentiers. Purification, 7 personnes.
Marchands et croqueteurs de grès.
Tentation, 6 personnes.
Marchands de blé. Entrée à Jérusalem, 16 personnes.
Drapiers. Resurrection du Lazaire, 8 personnes.
Confrères de Dieu et Mgr. Saint Jacques La Chesne, 13 personnes.
Voialge de Emaux.
Barbiers. Jardin d'olivier, 8 personnes.
Porteurs au sac. Prise de Jésus, 30 personnes.
Dieu portant sa croix, 20 personnes.

Cordiers, cailliers. Comment N-S. fut mené devant Anne, 5 personnes.
Dechargeurs. Les denlers que Judas receut, 5 personnes.
Bouchyers. Comment Judas se pendit. Jesus mené devant Caïphe, et Herode, 16 personnes.
Feronniers. candrelliers, maricauxx estamiers, orphevres. Comment Dieu fut battu a l'estacq, 12 personnes.
Taverniers, brasseurs. Ecce homo. Pilate lavant ses mains, 12 personnes.
Merchiers, julliers. Comment Jesus fut cloié à la croix, 18 personnes. Ysaude forgeant les cloux Dieu, 2 personnes.
Tainturiers, satiniers. Crucifmient, a plusieurs personnes.
Ceux de la poterne. Le Limbe, 7 personnes.

¹ Merchant and Craft Guilds, p. 49.

² On Corpus Christi day the procession was under the direction of the Abbot of Bon-Accord, later under that of Robin Hood. A fusion of May-day and Corpus Christi seems probable. Wyndmyhill, later Womanhill, seems to have been a play-field like that at Edinburgh.

³ Julleville, vol. 2, pp. 212-13.

⁴ Records of Aberdeen, p. 42; also, Merchant and Craft Guilds, p. 49.

1442. Aberdeen Pageants.

1549. Bethune Pageants.

Poissoniers. Descente de la croix, 8 personnes.

Hugiers, marchands de bois, cuveliers. Le sepulchre, 8 personnes.

Foullons, tistran de drap, parieurs de laine. La Resurrection, 5 personnes.

Fourniers. Les trois Maries et l'Ange. Jesus en conformé de ung jardinier, 4 personnes.

Compaignons du pourpoin.

La remonstrance des Patouriaux, 5 personnes.

Tappiers de velours, tisserans de toile. L'incrudulité de saint Thomas, 12 personnes.

Paintres. Les quatre Evangelistes, et saint Jerosme.

Wantiers, marchands de laine. Le Jugement a plusieurs personnes.

A comparison of the Aberdeen pageants with those of Bethune reveals instantly a kinship, yet the Bethune pageants were a 'mystère mimé.' We are forced to conclude that French influence was exerted in the cities of Scotland upon their plays as well as upon their municipal government, for there can be no doubt that this French series of tableaux is a direct descendant of those that antedate the tableaux of Aberdeen, and that the Aberdeen pageants have their direct antecedents in France and not in England.¹ It is stated that there were at Bethune twenty-eight pageant wagons. It is probable that the pageant of the Fleshers of Aberdeen and the succeeding ones were not carried; the remainder were, as we read (1531) "and tua of ilke craft to pass with the pageant that thair furnyss to keip thair geir."²

In these processional tableaux we have evidence of the intrusion of allegory, as in the royal entry.³ The Bethune series is still a cycle of mysteries, but in the Aberdeen plays, although more than a century older, the tableaux no longer have any connection, and we find, a century later, that a representation of the legends of the saints has almost excluded Biblical themes.

1531, May 22. The craftis are chargit to furneiss thair panzeanis vnder written:—

The flescharis, Sanct Bestian and his Tormentouris.

The barbouris, Sanct Lowrance and his Tormentouris.

The skynnaris, Sanct Stewin and his Tormentouris.

The cordinaris, Sanct Martyne.

¹ A curious survival of Candlemas pageantry in Yorkshire is found in the Bishop Blaize Festival. At Bradford in 1825 the procession contained a King, Queen, Jason, Princess Medea, Bishop Blaize and chaplain, and shepherds. The pageantry is supposed to refer to the woolen industry.—*Old Yorkshire*, vol. 2, pp. 151-4.

² Records of Aberdeen, p. 433.

³ Cp. p. 211.

The tailzeouris, the Coronatioun of our Lady.
 Litstaris, Sanct Nicholes.
 Wobstaris, walcaris, and bonet makaris, Saint John.
 Baxtaris, Sanct Georg.
 Wrichtis, messonis, sclateris, and cuparis, The Resurrectioun.
 The smithis and hammirmen to furneiss The Bearmen of the Croce.¹

The impossibility of forming a connected play out of these tableaux is sufficiently evident. Many other references to the procession might be given; thus in 1484 the penalty of absenteeism was the loss of freedom for a year, i. e., the freedom of the craft, not personal freedom; in 1531, the craft that failed to furnish its pageant must pay a fine of forty shillings.

The order in procession was established by the city fathers and was apparently the same for every procession. The Candlemas and Corpus Christi processions are sometimes mentioned together, but the regulation of 1531 established beyond question that the pageants were for Candlemas. It seems that on Corpus Christi day after the procession a play was usually performed on Windmill-hill. The play is mentioned in a regulation of 1440 and again in 1479, but it probably changed from year to year, and was under the care of the Abbot of Bon-Accord. It certainly was not the charge of the gilds.

II. "Bassingbourne, Cambridgeshire, 1511 (Play of St. George)". Players and musicians were secured in Cambridge. Labor and materials contributed by individuals and by twenty-seven neighboring villages.²

III. Bethersden, Kent. 1522 (Ludi beate Christinæ). Evidence not published. Probably a church play.

IV. Cambridge, about 1350³ (Ludus Filiorum Israelis). A school play,⁴ probably. William de Leune and Isabel his wife gave at their admission into the gild of Corpus Christi 20 s. 12 d. for alms, and expended in Ludo Filiorum Israelis half-a-mark.

After 1544 there were many plays. In 1546 Jephtha was acted at Christmas. In 1564 Queen Elizabeth was present on Sunday,⁵ Aug. 6, at a performance of Aulularia, on Monday of Dido, on Tuesday of Ezechias, which was written by Nicholas Udall. School plays, even when on Biblical themes, are an offshoot from the mystery play, and should be kept distinct.

V. Canterbury, time of Henry IV (Play of Corpus Christi by the crafts). Evidence not at hand. Possible, but out of the district where such plays were in vogue. The lack of allusions to these plays is significant.

1501-2 (Three Kyngs of Coleyn, on Twelfth Day).⁶ A special play in connection with a banquet at the Guildhall. Noteworthy for a description of horses constructed of can-

¹ Records of Aberdeen, p. 451.

² Sharp, p. 34; also Lyson's *Magna Britannia*, Cambridgeshire, p. 89; also for items, *The Antiquary*, vol. 7. 1883, p. 25.

³ Not 1355, as given by Stoddard.

⁴ *Retrospective Review*, vol. 12, pp. 7-11; *Masters*, vol. 1, p. 5.

⁵ *Nichols*, vol. 1, p. 186.

⁶ Ninth Report of Hist. MSS. Commission, p. 197.

was distended with hoops and laths and painted after nature, at a cost of three shillings. No evidence that the play was ever repeated.

VI. Dublin, 15th century (cycle, 11 plays known; Corpus Christi). Pageants for Corpus Christi, Dublin.¹

1. Glovers. Adam and Eve with angel bearing sword before them.
2. Corrisees (perhaps curriers). Cain and Abel with offering and altar.
3. Mariners and vintners. Noah and the persons in the ark appareled as carpenters and salmon-takers.
4. Weavers. Abraham and Isaac with offering and altar.
5. Smiths. Pharaoh and his host.
6. Skinners. Camel² with children of Israel.
7. Goldsmiths. King of Cullen.
8. Hoopers. Shepherds with an angel singing Gloria in excelsis Deo.
9. Corpus Christi gild. Christ in his passion with the Marys and angels.
10. Taylors. Pilate with his fellowship, and his wife clothed accordingly.
11. Barbers. Anna and Caiaphas.
12. Fishers. The Apostles.
13. Merchants. The Prophets.
14. Butchers. The Tormentors.

A comparison of these pageants with those of Aberdeen and Bethune³ reveals such striking similarities as compel us to pronounce them a series of mute pageants and not a cycle of spoken plays.⁴

This series is much nearer the primitive type than that of Aberdeen, the only breaks in the story appearing in 13 and 14, and in the introduction of the camel⁵ in 6.

Furthermore, the allusions in the records to plays and Corpus Christi processions justify this conclusion. In 1541 the procession of Corpus Christi was followed by the play of the Nine Worthies. We read of no cases where the genuine craft plays were so easily abandoned for a new play. It was no unusual thing, however, for the crafts to present plays on festival occasions and before notables. In 1528 certain crafts acted plays during Christmas week before certain high officials.⁶ The plays were chosen for some supposed reference to the craft; thus the taylors played Adam and Eve; the shoe-makers, Crispin and Crispianus; the vintners, Bacchus and his story; the carpenters, Joseph and Mary; the smiths, Vulcan and what related to him; the bakers, a comedy of Ceres, the goddess of corn. The Priors of St. John of Jerusalem, of the Blessed Trinity, of All-Hallows, presented, the one the Passion of our Saviour, the others the several deaths which the Apostles suffered. It would

¹ Hist. of Dublin, vol. 1, p. 110.

² Cp. with the camel in the pageant show on Midsummer-eve at Chester.—Lyon's *Magna Britannica*, Cheshire, pp. 583-4.

³ See p. 219.

⁴ Vs. ten Brink, vol. 2, p. 290.

⁵ This was possibly copied from some spoken mystery play, though I do not recall one that refers to the camel.

⁶ Hist. of Dublin, vol. 1, p. 108.

seem that the play which is extant, Abraham and Isaac, was such an isolated play, and not one of a cycle.¹

VII. Dunstable, 12th century (St. Catherine). A cloister-drama, probably in Latin.

VIII. Edinburgh, 1503. A play by John English and his company, being the players of the King of England, before James IV at his nuptials with the Princess Margaret at Edinburgh.² The records say—

Dec. 1554. The "litill farsche and play" made by William Lander to be performed before the Queen.³

1558. Payment to William Adamsoan for a play made for the triumph of our sovereign Lady's marriage.

Payment to William Lamb for setting forth the play.

Payment to all the writers who wrote the play.

Payment to Patrick Doran for writing certain plays.⁴

The Records of Edinburgh are remarkable for their silence concerning plays. In 1503 an ordinance in restraint of plays was passed, from which one infers that English innovations were not viewed wholly with approval. In 1554 the city built a play-field⁵ at heavy expense, and there are several entries of that year relating to plays.⁶ Plays, however, do not seem to have prospered in Edinburgh, and evidently the city had no craft plays.

IX. "Gloucestershire, 16th century. At Christmas. A kind of miracle play with the characters of Herod, Belzebub, and others." Probably a mumming in character, surely no mystery play.⁷

X. Heybridge, Essex, 1532, no data accessible.

XI. Lancashire, 1800. A mumming similar to that of Gloucestershire.

XII. Leicester, 1477 (Passion Play). A play presented by certain players who accounted to the city for receipts. The money and stage properties were devoted to the support of the processional pageants.⁸

1546-1571. Church plays at Church of St. Martin probably. The above appear to have been connected with the "Reading of the Passion on Palm Sunday."⁹

There were plays also at other churches.¹⁰

St. Mary's church, 1491. Paid to the players on New-Year's day at Even in the church, vi d.

1499. Paid for a play in the church in Dominica infra octave Epiph., ii s.

XIII. Lincoln, 1564 (Play of Old Tobit). An occasional play, played at Broadgate in July. There is no sign that it was repeated.¹¹

XIV. London, 12th century (miracle plays). "London, instead of theatrical shows and scenic entertainments, has dramatic performances of a more sacred kind, either representations of the miracles which holy confessors have wrought, or of the passions and sufferings in which the constancy of martyrs was signally displayed."¹²

These were probably Latin plays in churches and cloisters.

¹ Modern Language Notes, vol. 7, No. 6, p. 339 ff.

² Collier, vol. 1, p. 39; also Warton, vol. 2, p. 395, note.

³ Extracts from the Records of Edinburgh, p. 206.

⁴ Dalzell, p. 32.

⁵ Cp. with Windmillhill at Aberdeen, the play-field of Newcastle-on-Tyne, and the plain for sports in Cornwall.

⁶ Extracts from the Records of Edinburgh.

⁷ For text of a similar play, see Notices of Leicester, Wm. Kelly, p. 53.

⁸ Kelly, p. 27.

⁹ Kelly, p. 23.

¹⁰ Kelly, p. 14.

¹¹ Gentleman's Magazine, vol. 54, p. 103.

¹² Survey of London, p. 214.

1.

1390, July 18, 19, 20. Skinner's Well (Passion of our Lord and the Creation of the World). Played by the Parish-clerk gild.¹ Probably in French and closely modeled upon the plays of the Puits of France.² The King contributed 10 l.³

1409, Skinner's Well, lasted eight days ('of matter from the creation of the world'). By the same gild. The eight days' duration a significant link to continental tradition, being the octave of a church holy day. Patronized as before by the nobility.

These plays of the Parish clerks hold common traditions with the French plays, and should not be confounded with the other cycle plays of England. There were no craft-gild plays in London. The constant calls upon the gilds for stationary pageants for Royal Entries and for movable pageants for the Lord Mayor's Show, together with their many processions, seem to have made them averse to the additional expense of the craft-gild plays.⁴

1464. The Holy Trinity Gild, St. Botolph without Aldersgate, possessed a roll containing the pageants of the Holy Trinity, St. Fabyan, St. Sebastian, St. Botulf and 'the terement' (The Burial of Christ), 'paynted and lemenyd with gold.'⁵ These were in no sense mystery plays, but the roll contained a description and representation of the pageants which were carried in procession by the gild.

1557, June 7th, Grey Friars (Passion of Christ). "The sam day be-gane a stage play at the Grey freers of the Passyon of Cryst."⁶ An attempt under Queen Mary to revive old customs.

1557. Church in Silver Street, or Saint Olave's Day (Miraculous History of Saint Olave).⁷ Played from 8 p. m. till 12 at night, four hours. A miracle play of the patron saint. An incident in the attempt of the lovers of the old customs to revive them under Queen Mary.

1603. Elie House in Holborn (Christ's Passion). "Witnesse the acting of Christ's Passion at Elie house in Holborne when Gundemore lay there, on Good-Friday at night, at which there were thousands present."⁸

XV. Northumberland, 1512 (Nativity and Resurrection). Plays in the Earl's chapel. The entries of the Household-Book are interesting as showing the prominence given to plays and the station and remuneration of players. The plays are examples of the multitude of occasional plays presented at that time throughout England. It seems that one qualification for my Lord's chaplain was that he "be a maker of Interludes."⁹

XVI. Paris, France, 1313. Special performance before Edward II of England. A *mystère mimé*.¹⁰ If such are to be listed, there should be added :

1420, Dec. 1st. At entry of Charles VI and Henry V.

1424, Sept. 8th. At entry of the Duke of Beaufort.

1431, Dec. 2nd. At entry of Henry VI, etc.

XVII. Reading, 1498-1557. Evidence not at hand. Evidently church plays such as were presented in every prominent church in the kingdom.

XVIII. Shrewsbury, 1574 (A stage-play acted in the High Street). A play by the players of the Earl of Essex.¹¹ A study of those companies of players that were coinci-

¹ Survey of London, p. 7; Hone's Ancient Mysteries, p. 206.

² See p. 209.

³ Notices of Leicester, p. 29, referring to Devon's Issues of the Exchequer, p. 244.

⁴ It would seem that the entry in Stowe's Survey, p. 7,—“Other smaller wells were many near unto Clarkes well, namely, Skinner's well, so called for that the skinnners of London held there certain plays yearly, played of Holy Scripture,” etc.—were due to a confusion about the clerks' plays which were played at the skinnners' well. I find no other reference to any plays by the skinnners.

⁵ Hone, p. 81.

⁶ Machyn's Diary, p. 138; Strype, vol. 3, part 2, p. 6.

⁷ Strype, vol. 3, part 2, p. 6.

⁸ Prynne, *Histrio-Mastix*, p. 117.

⁹ Percy, p. 139.

¹⁰ Julleville, vol. 2, p. 188; also, see p. 148.

¹¹ Fosbroke, vol. 2, p. 665.

dent with the decline of the mystery play would be instructive, but foreign to the study of the mystery.

XIX. Sleaford, 1477. Gild of Holy Trinity (Three Kings of Cologne on Corpus Christi day, and Play of the Ascension). Probably tableaux with explanatory speeches. Possibly full plays By the crafts.¹

XX. Tewkesbury, 1578, 1585. Probably church plays.

XXI. Winchester, 1487. By alms boys (Christi descensus ad inferos). Played by the choir-boys of Hyde Abbey and Saint Swithin's Priory before Henry VII on Sunday during dinner, on occasion of the birth of Prince Arthur.² A cloister drama.

XXII. Windsor, 1416 (St. George of Cappadocia).³ To entertain the Emperor Sigismund. Probably a dumb show. Belongs with the pageants and plays of St. George elsewhere exhibited.⁴

XXIII. Witney, Oxfordshire, 16th century (The Resurrection. A dumb show). A puppet show in the church.⁵ The same authority refers to similar shows in St. Paul's, London.

XXIV. York, Before 1384. (Our Lord's Prayer). This play when first presented so commended itself to the inhabitants of York that a Gild of the Lord's Prayer was formed to maintain it. A play of the vices and virtues. The MS., delivered to Archbishop Grindal for criticism in 1572, disappeared. Played on movable pageant wagons.⁶

XXV. York, 1446. (Creed Play). Given by the will of William Revetor, keeper of the Corpus Christi Gild, to the gild with the condition that it should be publicly performed every tenth year in various parts of the city. A considerable play, since in 1535 the gild plays were omitted because of it. In 1568 it was sent to Dean Hutton for examination. He advised that it should not be played.⁷ Played on movable pageant wagons.

XXVI. Kendall, Preston, and Lancaster. (Corpus Christi plays seen in the reign of James I). "They call this Corpus Christi Play in my countrey which I have seene acted at Preston, and Lancaster, and last of all at Kendall, in the beginning of the raigne of King James."⁸

An anecdote by Rev. John Shaw, 1664, of a man sixty years old who saw once at Kendall a Corpus Christi play where there was a man on a tree and blood ran down.⁹

XXVII. Cornwall, Queen Elizabeth's reign. (Guany miracle play). A cycle of three plays. Played in a circular plain prepared for the purpose.¹⁰

XXVIII. Newcastle-on-Tyne, 1426-1589. Plays undoubtedly older than 1426. Played in a fixed spot, not on movable pageant wagons.¹¹ The pageants were, however, carried in procession to the place of acting.

XXIX. Wymondham, 1549. "This was doone before Midsummer, and so it rested till the sixt of Julie, at which time there should be a publike plaie kept at Wymondham, a town distant from Norwich six miles, which plaie had beene accustomed yearelie to be kept in that towne continuing for the space of one night and one daie at least." Advantage was taken of the concourse of people to foment rebellion.¹²

The list as analyzed yield the following :—

1. Cycle mystery plays by craft gilds, on movable pageant wagons,—Chester (IV), Coventry (V), Worcester, and York.
2. Cycle mystery plays by craft gilds, not on pageant wagons,—Newcastle-on-Tyne (XXVIII), Woodkirk.

¹ Oliver, History of the Holy Trinity Guild at Sleaford.

² Warton, vol. 2, p. 394.

³ Collier, vol. 1, p. 20; Marriott, p. xxvi.

⁴ See p. 214.

⁵ Lambarde, p. 459.

⁶ Toulmin Smith, p. 138; York Plays, pp. xxviii, xxix; Davies, p. 265.

⁷ Smith, p. xxx; Davies, p. 258; Register of the Gild of Corpus Christi, p. 24.

⁸ Weever's Funeral Monuments, as given by Sharp, p. 133.

⁹ Halliwell-Phillipps, vol. 1, p. 48.

¹⁰ Cut of field, Borlase, p. 197.

¹¹ Brand, vol. 2, pp. 369-379; also in the account of each craft.

¹² Holinshead, vol. 3, p. 963.

3. Cycle mystery plays by craft gilds, mode of presentation unknown,—Beverly.
4. Possibly cycle mystery plays by craft gilds,—Sleaford (XIX) (?) Preston, Lancaster, Kendall (XXVI), Canterbury in time of Henry IV, Wymondham (XXIX).
5. Cycle plays, not mystery, on pageant wagons,—York, Our Lord's Prayer (XXIV); York, Creed Play (XXV).
6. Cycle mystery plays, not by craft gilds,—
 - a. By literary society,—London by Parish clerks (XIV).
 - b. By wandering troupe (?)—Coventry.
 - c. By the parish and the priests,—Cornwall (XXVII).
7. Single religious play by religious gild,—Sleaford (XIX).
8. Single religious play in connection with church service,—Bethersden, Heybridge (X), Leicester, 1546-71 (XII), Reading (XVII), Tewksbury (XX).
9. Plays in the chapels and castles of nobility,—Northumberland (XV).
10. Puppet mystery, a form of church mute mystery,—Witney (XXIII).
11. Occasional plays, mystery or otherwise,—Bassingbourne, Canterbury, 1501-2, Edinburgh (VIII), Leicester, 1477 (XII), Lincoln (XIII), London, 1556, 1557, 1603 (XIV), Windsor (XXII).
12. School or cloister dramas,—Cambridge, Dunstable (VII), London, 12th century (XIV), Winchester (XXI).
13. Processional pageants,—Aberdeen, Dublin (VI), London by Holy Trinity Gild (XIV).
14. Christmas mummings,—Gloucestershire (IX), Lancashire (XI).
15. Royal entry,—Paris (XVI).
16. Play by company under the protection of some noble,—Shrewsbury (XVIII).

XVIII.

THE DEVELOPMENT OF THE NORTHERN SEPTENAR STANZA.

The English Mystery Plays present a bewildering variety of metres and stanzas. In this variety, however, it may be expected that individuality of authorship will reveal itself, since a scribe is less likely to distort beyond recognition stanzaic structure than to destroy dialectal peculiarities in the changes of transcription. But

a study of the prosody of the plays involves the discussion of nearly all the forms of Middle English metre. It seems best, therefore, to consider in brief the genesis of the leading types of English mediæval metres.

The Latin of the Middle Ages was the reservoir from which the Western literatures in common drew their metres. Within the centuries preceding the rise of national literatures, the Latin of the church had ceased to regard quantity, and had conformed to the vulgar dialects in placing the stress upon the root syllable. Consequently the monkish verse was an accentual verse, which, however, although regardless of quantity, still gave heed to the regular succession of stressed and unstressed syllables.

This verse under the influence of accent assumed new characteristics. The metrical foot and the word became coincident, the line with feminine ending prevailed, rime arose, and because of the frequent occurrence of similar endings in Latin, that species of rime known to the French as 'entrelacée,' or 'lacé,' where a succession of lines, mounting sometimes into the hundreds, have but one rime, became a famous metrical resource.

The verse forms became fixed as types which were recognized as the proper vehicles of expression, each for a variety of literature. Thus the 7-accent line, or septenar, was used in satirical or political poetry. Stanzaic formations, from which arose the 12-line stanza to which the English metrical romance writers were so partial, are found in church proses and Latin church mysteries.

From these Latin metres directly, or through the medium of the French, arose the English metrical lines, which were, in general, of three varieties: the 7-accent line, or septenar, the 6-accent line, or Alexandrine, and the 4-accent line. These lines were combined in various ways to form stanzas; sometimes a model already established in French or Latin was followed; sometimes a new stanzaic form, the product of national genius, was originated; but in ultimate analysis each stanza can be resolved into lines of the three types—the possible occurrence of a 5-accent line will be discussed later—unless it be a direct imitation of a less usual French or Latin type.

The Latin septenar was cultivated in England. It was used for political poems from the time of King John, and probably earlier, and was the customary form for the goliardic poems which usually pass under the name of Walter Map. From this line and the stanzaic structure arising therefrom, sprang, without the aid of French influence, as I think, the typical form of the septenar stanza in the

poetry of the north of England. To this we will turn our attention first.

In studying the English poetry of the septenar stanza, attention must be paid to the mode of publication, for the poetic form was closely molded to the known needs of utterance. In the North the gleeman was still welcome to the home of the franklin or the hut of the peasant. The tradition of the fathers had not been broken, as in the South, by the intrusion of the jongleur with the fashions and tales of France. We may believe that, harp in hand, the bard still recited the warlike deeds of the fathers in the alliterative measures of the Old English, until the church poets furnished him with ballads and pious songs, formed, as we shall see, upon the Latin septenar. These were sung with the accompaniment of the harp in a recitative delivery, imitated, it may be, in part from the rhythmic intonation of the church service.

For such delivery the harp is preëminently the instrument. It is wholly responsive to the will of the reciter, who can heighten the accent of his lines, and even supply a rhythmic stress, where the poet's art failed him, by a touch of the harp-string. A succession of light unstressed syllables can be run, or two stressed syllables in juxtaposition separated, by a slide of the voice, with the aid of the instrument. To poet and reciter alike the feet of classical metres were unknown; so long as the musical rhythm of the verse was maintained, he cared nothing for trochees or anapæsts, and for this task the harp was his ablest coadjutor.

The discussion here concerns itself directly with the septenar stanza of the ancient Bernicia, that district extending from the Humber through the Lowlands of Scotland. No position is taken regarding the scansion of later English metres, formed under the influence of classical models, or dominated by French metrical systems. The stanza was formed from a Latin measure that had cast off all the laws of the classics. Under the law of accent, subject only to the requirements of recitative delivery, it ran its career, as we shall see, from the regularity of the Latin septenar to a lawlessness that tolerated an excess of unstressed syllables so extreme that the voice of the reciter must needs find rest in irregular stresses.

Indirectly, our contention touches also the metres whose district lies south of this, for the regularity of the Latin and French metres was corrupted through contact with the popular measure of the North. Indeed, it was this principle, best illustrated in the septenar, that, through its sturdy resistance to the classicists of the

Elizabethan age, compelled a compromise and saved our prosody from the level monotony of excessive uniformity of movement.

However, it is sufficient for this discussion that the reader should abandon as futile all attempts to analyze into classical feet the English verses which follow, and read them with natural stresses, running the unstressed syllables as nearly as possible in a recitative monotone. Semi-stresses occur, occasionally two semi-stresses take the place of a full stress, and often a slide or prolongation of a stressed syllable, or a cæsura, is the only separation between two stressed syllables; but these semi-stresses, for the sake of simplicity of presentation, I have ignored, using only the breve and the macron for unstressed and stressed syllables respectively.

Another agent in the formation of this stanza was alliteration, for which the poetic consciousness of the people still made its demands. The letter-rime, coinciding with the stress, heightened the accent, and rendered the unstressed syllables of still less importance. The old alliterative verse was very similar to the first half-verse of the 7-accent line. The Northern poets took the septenar line in its stanzaic form and laid upon it the requirements of their ancient poetry, thus building for themselves a characteristic stanza, distinctive, as I believe, of the poets north of the Humber.

It becomes necessary now for us to trace in support of these propositions the rise of the septenar stanza, and to note carefully the laws of its formation. Of the Latin septenar of the thirteenth century examples are abundant. It was the usual vehicle, as has been said, for political song and satire.

Ex. 1. The Battle of Lewes. Middle of thirteenth century. Lines 1-4.

Cálamús velócitér || scríbe síc scríbéntis,
Língua laúdabílitér || té benédicéntis,
Déi pátris dexterá || dómíné virtútem,
Quí das túis próspérá || quándo vís ad nútum:

— u — u — u — " — u — u — u)
— u — u — u — " — u — u — u)
— u — u — u — " — u — u — u)
— u — u — u — " — u — u — u)

a a b b etc.

Characteristics :—Rime by couplets, no stanzaic structure, masculine cæsura, feminine rime, stress follows the cæsura, trochaic movement, regular succession of stressed and unstressed syllables, cæsura regularly divides verse into a first half of four accents and second

¹ Wright, p. 72.

half of three accents, attempt at coincidence of verse and word accent,¹ but not fully carried out in the second half-verse, riming cæsuras.

This is the typical form of the Latin septenar, and shows clearly its derivation from the classical dactylic hexameter.² The masculine cæsura and feminine verse-ending have been retained. Quantity has been exchanged for accent, the trochaic movement has superseded the dactylic, and an accent has been added to the first half-verse.

Ex. 2. The Song of the Welsh.³ Thirteenth century. Last tetrastich.

Ístis súis fínibús || cóntigit regnáre;
Íllis dúces, práesidés, || réges tríumpháre,
Quíbus núllo méritó || sé possínt æquáre;
Ést quam régnaré longé || plús indúperáre.

— u — u — u — " — u — u — u — }
— u — u — u — " — u — u — u — }
— u — u — u — " — u — u — u — }
— u — u — u — " — u — u — u — }

a a a a.

Characteristics :—Rime entrelacée, cæsuras without rime, otherwise as Ex. 1.

The frequent occurrence in Latin of the same termination made it possible for the poet to continue his verse indefinitely with a single rime; thus in the 'Dialogus Inter Corpus et Animam' fifteen lines rime entrelacée. The French poets, however, excelled in this species of verbal gymnastic, the author of the *Thesaur de Pierre de Corbian*⁴ riming its eight hundred and forty lines on the ending 'ens.'

Ex. 3. Dialogus inter Corpus et Animam.⁵ Lines 105–109.

Múndus ét dæmóniúm || légem sánxire mútuam,
fraúdis ád consórtium || cárnem tráhentes fátuam
éorúmque blánditiís || cáro séducit ánimam
quám a virtútum cúlminé || tráhit ad pártem ínfimam,
quæ statim cárnem séquitúr || út bos dúctus ad víctimam.

— u — u — u — u — " — u — u — u — u — }
— u — u — u — u — " — u — u — u — u — }
— u — u — u — u — " — u — u — u — u — }
— u — u — u — u — " — u — u — u — u — }

a a a a.

¹ See 'Der lateinische accent,' by P. Lange, *Philologus*, vol. 31, p. 107; also *Handbuch der Klassischen Altertums-Wissenschaft*, vol. 2, p. 595, art. 128, 5.

² The trochaic septenar was favored by the late Latin writers, but differed from the mediæval septenar in essential points.—*Handbuch*, p. 596, art. 131.

³ Wright, p. 58.

⁴ *Grand Dictionnaire Universelle* s. v. Rime.

⁵ *Poems of Walter Mapes*, p. 99.

Characteristics :—The intrusion of the dactylic movement in every verse position except the second, otherwise as Ex. 2. In the poem this stanza is preceded and followed by septenar stanzas on the model of Ex. 2.

Ex. 4. De Pravitate Sæculi.¹ Lines 29–33.

Séd ne vós detíneám | túrbíné sermónum,
múndi cáput córruít | nón habét patrónum :
úbinám est hódíé | vírtus Scéplónum,
Márcellúsque loquáx | et nómina vána Catónum ?

— u — u — u — " — u — u — u — u }
— u — u — u — " — u — u — u — u }
— u — u — u — " — u — u — u — u }
— u — u — u — " — u — u — u — u }

a a a a.

Characteristics :—The tendency shown in Ex. 3 has been reduced to system, the fourth verse becoming dactylic by the loss of one stress in the first half-verse and the removal of stress from the syllable immediately following the cæsura. There are many irregularities in this poem, but the intention of the author seems evident from such fourth lines as—Júpiter ésse píum || statuít quodcúmque juváret.

We return now to Ex. 1. This passage rimes at the cæsuras by couplets, and can therefore be written as two quatrains. But these quatrains were easily bound together into one stanza by alternating rime, as is shown by the following lines taken from the same poem.

Ex. 5. Lines 159–162.

Inferéntes miseris
Quí non súnť cordáti,
Néc divíní múnérís
Grátíá firmáti,
Cárnís desidéríís
ánímáles dátí,
Cújus ímmundítíís,
brútís cómparáti,

— u — u — u — u }
— u — u — u — u }
— u — u — u — u }
— u — u — u — u }

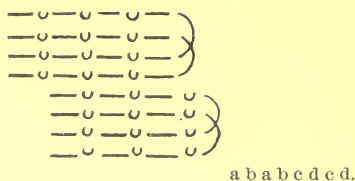
a b a b a b a b.

Since the Latin 7-accent line was not inconveniently long, it was usually written as such ; but in English the above form was favored, and, through the prominence thus given to the cæsura, riming half-verses increased in frequency, and one type of English stanza became fixed.

Another form of stanza arises from a different combination of 7-accent couplets of the type of Ex. 1. The two couplets given as Ex. 1 may be written by taking the first half-verses alternately, and

¹ Poems of Walter Mapes, p. 159.

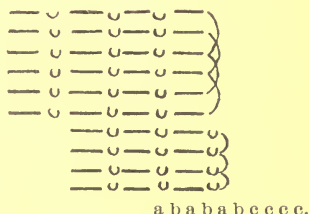
then the second half-verses in like order. The stanza thus becomes as follows—



But rhythmical proportion seems to require that the first stanzaic section shall exceed the second in the number of verses, standing either six to four, or eight to four or six. The correspondence between the octet and sestet of the sonnet and the eight and six of the septenar stanza would seem to argue a psychological basis for this division.

Ex. 6. De Nummo.¹ First stanza.

Mánus féréns múnérá
píum fácit ímpiúm;
númmus júngit fódérá,
númmus dát consíliúm;
númmus lévit áspérá,
númmus sédat praeliúm;
númmus ín praelátis,
ést pro júre sátis;
númmo lócnm dátís,
vós, qui júdicátis.



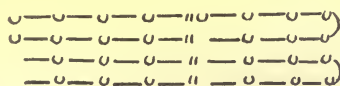
That these verses are derived from the septenar is proved—

1. By the retention of the masculine rimes in the first six lines.
2. By the use of feminine rimes in last four lines.
3. By the entrelacée rime of the last four lines, a favorite rime in septenar lines.

In the six examples given above the movement is without exception trochaic. This was not an essential characteristic of the 7-accent line. The Latin septenar was usually trochaic, but the French and English were more frequently iambic.

Ex. 7. Song from 'Carmina Burana.'²

Fortúnæ róta vólvitúr, || descéndo mínorátus;
altér in áltum tóllitúr || nímis éxaltátus;
réx sedít in vérticé, || cáveát ruínam,
nám sub áxe légimús, || Hécubám regínám.



¹ Poems of Walter Mapes, p. 226.

² Schipper, vol. 1, p. 90.

Characteristics :—On the model of Ex. 1, but with confusion of trochaic and iambic movement, a tendency to insert an unstressed syllable after the cæsura in iambic lines; usually the first half-verses of couplets have the same movement, the change, when made, arising from the stressed or unstressed condition of the vowel following the cæsura. The example illustrates unintentional rimes, the first couplet riming at the cæsura, the second not so riming.

Ex. 8. The Lament of Simon de Montfort.¹ First stanza.

Chauntér m'estóit, mon cuér le voit, ¶ en ún duré langáge,
Tut én ploráunt fust fét le cháunt ¶ de nóstre dus báronáge,
Que púr la pées, si loýnz aprés ¶ se lésserént detrére,
Lur còrs trenchér, e démenbrér, ¶ pur sálver Éngletérre,
Ore ést ocýs la flúr de prís, ¶ qe taúnt savóit de guére,
Ly quéns Montfórt, sa dúre mórt ¶ molt énploorá la tэрre.

u—u—u—u—u—u—u—u—u—u—
 u—u—u—u—u—u—u—u—u—u—
 u—u—u—u—u—u—u—u—u—u—
 u—u—u—u—u—u—u—u—u—u—
 u—u—u—u—u—u—u—u—u—u—

Characteristics :—This stanza is formed according to one form cited by Dante,² two couplets (pedes), and a closing couplet (cauda). The change to iambic movement is complete, and is accompanied by the insertion of an unstressed syllable after the cæsura; the rimes become masculine through the influence of the iambic movement.

The lines, however, contain concealed rimes at the second and fourth stresses, rendering possible a stanzaic scheme as iambic dimeter. The first couplet forms, then, a stanza thus—

u—u—u—u—
 u—u—u—u—
 u—u—u—u—
 u—u—u—u—
 u—u—u—u—
 u—u—u—u—

a a b c c b.

This stanzaic structure passed into English, and was cultivated by Dunbar,³ Wyatt,⁴ and others.

As derived from the Latin septenar with double feminine rime and trochaic movement, it must be of a very early date, as it is found in the hymn on the Epiphany⁵ of the ninth century, with the following scheme—

—u—u—u—
 —u—u—u—
 —u—u—u—
 —u—u—u—
 —u—u—u—
 —u—u—u—

a a b c c b.

¹ Wright, p. 125.

² Dante, p. 232.

³ Vol. 1, p. 93,—“Of the Ladyis Solistaris at Court.”

⁴ Guest, p. 587.

⁵ Guest, p. 586.

This stanza became very popular for church lyrics in England¹ and France.

The form passed also into English, but, as English taste is averse to double feminine rimes, the second unstressed syllable received a stress, and oftentimes other verses were given masculine rimes by dropping final unstressed syllables; such an example is, in Shakespeare, Puck's song,² "On the ground," etc.; this is in sharp contrast with the song of Pyramus, "But stay, O spite!" which is in the same stanza with iambic movement.³

From this stanza as type many other forms arose in church prosæ, and passed thence into profane literature; but, as they are foreign to our purpose, we turn to the consideration of the 7-accent line in English.

Ex. 9. Poema Morale,⁴ date of MS. about 1200, of poem about 1170. Dialect South-English. First couplet.

Íc am élder, thánne ic wés, || a wíntre and éc a lóre;
ic eáldi móre, thánne ic déde: || mi wít óghte to bi móre.

—o—o—o—||o—o—o—o—
o—o—o—o—||o—o—o—o—

Characteristics:—In common with Ex. 1, rime by couplets, no stanzaic structure, masculine cæsura divides verse into a first half-verse of four stresses and a second of three stresses. As different from Ex. 1, confusion of trochaic and iambic movements, irregular succession of stressed and unstressed syllables, unstressed syllable following cæsura, or stressed, as—

Ne máí him nó man ál swo wél || démen né swo rihte:

Two points are, however, fairly well established—

1. If a stressed syllable follows the cæsura, the line will usually begin with the trochaic movement.

2. The two verses of the couplet will usually agree in this matter.

This measure, written in stanzas of four verses, second and fourth riming, or in quatrains, is termed in English hymnology 'Common Metre.' It forms also a favorite ballad measure for Northern ballads.

Ex. 10. St. Stephen and Herod.⁵ Second stanza.

Stéuyn out of kéchone cáim || wyth bórís héd on hónde,
He sáw a stérre was fáyr and brýgt || ouér Bédlem stónde.

—o—o—o—||o—o—o—o—
o—o—o—o—||o—o—o—o—

¹ *Analecta Liturgica*, Fasciculus V, *Prose Ecclesie Abrincensis*, p. 319; also in *Prose Ecclesie Sancti Dionysii*, p. 360.

² M. N. D. 8, 2.

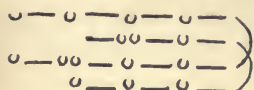
³ M. N. D. 5, 1.

⁴ *Anglia* 1, p. 6.

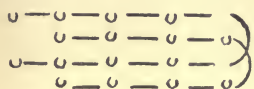
⁵ Child, vol. 1, p. 241.

⁶ For discussion of alliteration in septenar stanzas see p. 237 ff.

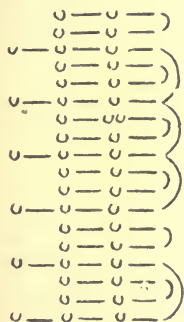
The ballad stanza is, however, customarily written in four verses ; thus, in 'Lady Isabel and the Elf-Knight,' first stanza.¹



Or in 'Georgie,'² second stanza—



It may be added in passing that a rare form of ballad stanza, that of the 'Not-browne Mayd,'³ is derived from the iambic dimeter under Ex. 8. Second stanza.

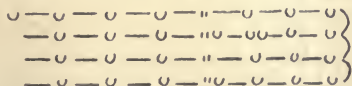


This affords an illustration of the resolution of the full stanza of Ex. 8, and keeps the proportion of the type between 'pedes' and 'cauda.'

To return again to the septenar, and cite additional illustrations of the close modeling of the English stanza upon the Latin.

Ex. 11. A song.⁴ Fifth stanza. Southern dialect.

Be stílle, þou fól, y cállé þou ríht, I cóst þou néuer blýnne?
þóu art wayted dáy & nýht I wíp fáder & ál my kýnne;
bé þou ín mī bóur ytáke, I léte þey fór no sýnne
mé to hólde, & þé to slóu: I þe déþ so þóu maht wýnne?



Characteristics :—Those of Ex. 2 and Ex. 9 feminine rimes and entrelacée.

¹ Child, vol 1, p. 57.

² Percy, vol. 2, p. 193.

³ Child, vol. 7, p. 140.

⁴ Bøddeker, p. 172.

The examples of the septenar stanza have so far been drawn from the Southern and Midland dialects, with the exception of certain ballad forms. Alliteration has played no important part in the verse. The stanza has been bound by no laws not absolutely necessary for its formation. As we pass to the North, however, an important difference appears. Great technical mastery of this, the favorite stanza, is evident. Alliteration becomes prominent and obligatory. The verses receive a different arrangement from that known in the South. A new type of stanza is established, with a life history of its own.

Of the process by which this result was attained, we know but little. Few records of the early attempts of these poets have survived. We find the typical stanza, with verse arrangement as in the Latin, Ex. 6, fully established, certain requirements in alliteration recognized, and the poets experimenting with various methods of ornamentation.

It seems best to consider first the varieties of ornamentation and structure in a familiar stanzaic form. The example chosen might be written as iambic dimeter,¹ as in Ex. 10, but the stanza would be inordinately long. Moreover, this leonine rime was cultivated in the North when, oftentimes, it was not carried out with sufficient regularity to admit of resolution. In my opinion the author intended this for a septenar stanza in 4's and 3's, without riming primary cæsuras, i. e. at the close of the 4's, and with entrelacée long lines, i. e. entrelacée 3's, although the lack of rime with the primary cæsuras is very unusual.

The development of the stanza can, then, be briefly stated as follows—

1. A septenar stanza of six verses, the first four constituting the 'pedes,' the last two a closing couplet, or 'cauda.'
2. The first four verses rime entrelacée.
3. Structural alliteration imposed upon the 7-stress line.
4. Resolution of the 7-stress lines, forming a 12-verse stanza, without riming primary cæsuras, but with secondary cæsuras following the second stress in the 4-stress verse.
5. Leonine rime in the 4-stress verse, which might, therefore, be written as dimeter, since the rime is carried consistently through the poem.

A word concerning structural alliteration is here in place. The Old English verse measure was based in great part on alliteration.

¹ Schipper, vol. 1, p. 366.

The law of structure has been most concisely given in the words ;¹ "It [alliteration] consists in the employment of the same or similar sounds at the beginning of a syllable which receives the primary stress. The second hemistich contains one such alliterative syllable, as a rule that which has the first primary stress ; the first hemistich has regularly two, though frequently only one. The alliterative sound must be the same throughout, if consonantal ; if vocalic, it is usually different in the three syllables."

It may be affirmed, in general, that the laws of Old English alliteration obtained in the Middle English period in the septenar line of the Northern English. Sometimes, however, the 7-stress verse was considered as a whole, as in the following example ; sometimes the 4-stress line constituted the verse, and in neither case does the author hesitate to place the two alliterative syllables in either half-verse, as may best suit his convenience. Structural alliteration in Middle English, then, consists of three alliterative syllables under the primary stress, two of which should be in one half-verse—more generally in the first—and one in the other.

Alliteration for ornament continually increased both in the North and South, showing itself in the following ways—

1. By excessive alliteration.
2. By alliteration in semi-stressed syllables.
3. By alliteration in unstressed syllables.
4. By alliteration of different consonantal sounds, as *f* with *v* or *w*, *s* with *sh*, etc.²
5. By disregard of the primary stress in placing alliteration.

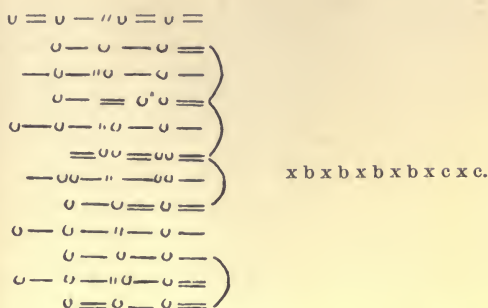
Ex. 16. Moral Poem, by Richard Rolle de Hampole.³

When Ádam dálfe || and Éve spáne,
 So spíre if þóu may spéde,
 Wháre was þán || the príde of mán,
 þat nów mérres his méde ?
 Of érthe and láme || as wás Adám,
 Nákede to nóye and néde.
 Wé er, als hé, || náked to bé,
 Whills wé þis lýfe sall léde.
 With í and oé || bórne er wé,
 As Sálamón vs híghte,
 To trávell hére || whills wé er fére,
 As féwle vn-tó þe flýghte.

¹ Cook, p. li.

² Die Alliterierende Langzeile, by Rosenthal, *Anglia* I, p. 440.

³ E. E. T. S. No. 26.



As regards the alliteration,—in three cases, one syllable in the first half-verse, two in second, of full septenar line ; in one case all three syllables in second half-verse. This is probably due to the difficulty of preserving both leonine rime and alliteration in the first half-verse. In one verse, the first of the closing couplet, there is no alliteration.

The above example was an ambitious attempt at leonine rime by an author who had apparently found no model for a complicated stanzaic structure. Such a type was perfected by other poets, the earliest and most radical divergence appearing, so far as we know, in the Northern 'Evangelium Nicodemi.'¹



In this the double quatrain with masculine rimes, an important modification of Ex. 15, is established, and the 3-stress quatrain cauda appears. This form of cauda is one distinguishing feature of the Northern stanza, but we refrain from discussing the stanza until it appears in its full development.

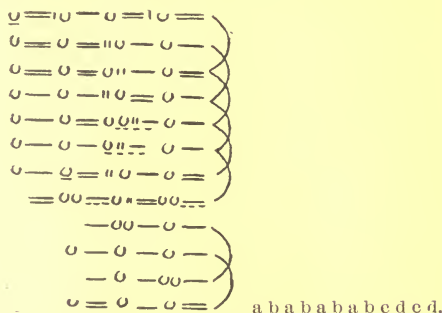
This, the typical stanza of the North, is reached by the substitution of 4-stress lines for the 3-stress lines of the double quatrain of Ex. 17.

¹ Evangelium Nicodemi, Archiv für neuere Sprachen, 1874-5, Nos. 53, 54.

Ex. 18. York Plays, No. X, stanza 1.

Grett gód, | þat álle þis wórlð | has wroúght,
 And wisely wóte || both gúd and ílle,
 I thánk hym thrály || in my thóught
 Of áll his láue || he lénis me tílle.
 That þús fro bárenhede || háis me bróght,
 A húndereth wýnter || tó fulfílle,
 Thou gráunte me mýght || so þát I móught
 Órdan my wérkis || áfter þi wílle.

Fór in this érhely lýffe
 Ar nón to gód more bóune,
 Thén is Í and my wýffe
 For frénshippe wé haue fóune.



This stanza illustrates the typical septenar stanza within the limits of the ancient Northumbria. It is, however, an imperfect example, since signs of deterioration are present, especially as regards alliteration. Possibly a perfect specimen was never produced. But such as it is, it will enable us to establish the characteristics of the stanza, and will give us a starting point from which to trace the variations, expansion, and disorganization of the stanza in its later history. With immaterial changes this form appears in the York plays II, X, XI, XX, XXIII, XXIV, XXVII, XXXV, XXXVII, XLIV, and in portions of XII, XV, XVII.

Characteristics :—

1. A first section of eight verses with two alternate rimes. Variation in this section marks extreme deterioration of stanza.

2. A second section, consisting of a 3-stress quatrain.

This frequently contains six verses, and may vary in the method of riming.

3. The regular iambic movement. The stanza drifts steadily toward the anapæstic movement, finally exceeds it in the number of unstressed syllables, and breaks down through lack of carrying power in the voice ; then irregular accents are introduced, and the first verses of the stanza receive five or six accents.

4. In alliteration this stanza shows—

- a) The type, in verse 3.
- b) Cross alliteration, in verse 8.
- c) Double alliteration with one syllable a semi-stress, in verses 1 and 5.
- d) Alliteration with unstressed syllable, in verse 7.
- e) Deficient alliteration, in verses 2, 4, and 6.
- f) The presence of but little alliteration in the second section.

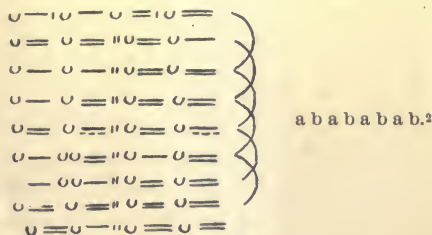
All the stanzas of these York plays show some irregularities, but many have fewer exceptions than this.

5. Distinguishing marks of early formation—

- a) Lack of excessive alliteration.
- b) Regularity of iambic movement.
- c) Typical rime in second section.
- d) Absence of 'bob.'

Whether the double quatrain stanza, with structural alliteration and masculine rimes throughout, is of earlier or later construction than examples 17 and 18, admits of doubt. I incline to think it later, and formed from Ex. 18 by omitting the cauda. In any case there is proof¹ that the same author wrote in both stanzas at a time when, if the evidence can be trusted, a poet usually confined his efforts to one style of English verse. The similarity of these double quatrains to Ex. 18 is quickly seen.

Ex. 19. York Plays No. VIII, last stanza—



In Ex. 18 the beginning of stanzaic deterioration, as shown by irregularities of alliteration, was noted, but in neither Ex. 17 nor Ex. 18 was there any variation from alternate riming. This, together with masculine verse endings, must be retained so long as consciousness of the origin of the stanza from the English septenar is present. But with the loss of the tradition a departure from the type may be expected. Now in the Latin stanza the entrelacée rime was the favorite; therefore contamination of the English type through

¹ See p. 267.

² A curve should extend to the last line, as to the preceding.

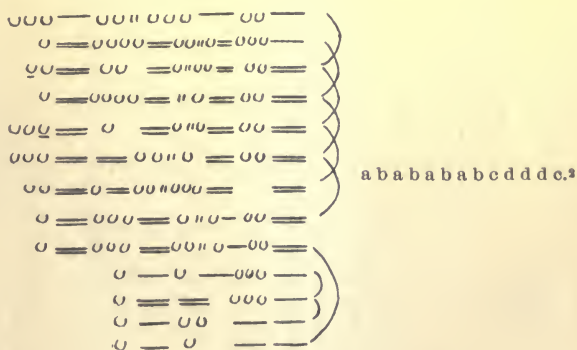
The direction of the deterioration is evident. All stressed syllables but two, and four unstressed syllables, have alliteration in this stanza. Such overloading with alliterative sounds destroyed all sense of their proper function. The first half-verses have passed the bounds of anapaestic movement. The voice naturally places a stress upon the first unstressed syllable, thus transforming the verse into a 5-stress line and destroying the stanza. It is significant that this quasi 5-stress line was considered the most suitable for royal personages. Many instances might be cited of this anticipation of 'Marlowe's mighty line.'

XIX.

CERTAIN STANZAS OF THE MYSTERY PLAYS.

The later forms of the septenar stanza do not particularly concern us, as they lie outside of the Mystery Plays. I will therefore pass over them rapidly, giving the stanzaic schemes for completeness of view and for comparison with the Southern stanza toward which they gravitated.

Ex. 22. Prologue to the Eighth Book of the *Æneid* by Gawain Douglas, date 1513.¹ Last stanza.



Lines 4 and 5 have the same alliterative letter, the letter s.

Ex. 23. The Howlate of Holland, date 1450-54.³ Stanza 2.

¹ Schipper, vol. 1, p. 221.

² In the first line, the macrons (—) should each be read as double macrons (=), and another one should be inserted just before the cæsure.

³ Pinkerton, vol. 3, p. 147.

Lines 1 and 2 alliterate on g, lines 3 and 4 on b, lines 5 and 6 on l, lines 8 and 9 on t, lines 12 and 13 on b.

So similar are examples 22, 23, and 24, that I do not hesitate to pronounce them products of the same school. Examples 23 and 24 were possibly by the same author, and written in the neighborhood of Carlisle.

It would seem, then, from the evidence of the stanza, that 1500 is too late for Gawan and Gologras, and 1350 a date much too early for the 'Anturs.'

Ex. 26. Of Saynt John the Euaungelist,¹ date about 1440.² Stanza 1.

uu=uuu == "u == uu ==
 uuu== == uu uu == uu —
 ==uuuu==uuu —uuu ==
 uu= uu == " == uu ==
 == uu == " == uu ==
 u= uu == "u == uu ==
 uu= uu == "uu ==
 u=uuu == "u == uu ==

ababababcedced.

u == uu ==
 u == uu ==
 u — uu —
 u == uu ==
 u == uu ==
 u — uu —

Each alliteration is carried through two lines. The first short line recasts the thought of the last long line. It is impossible to determine with certainty whether these more corrupt forms are descendants of the septenar stanza, or are offshoots from the Southern stanzaic forms.

Ex. 27. Susanna,³ date about 1360.⁴ Stanza 1.

uuu=uuu == "uu ==
 uuu== == u"u=uuu —
 uuu=uu == "u == uu —
 uu= u == "u == uu —
 u=uu= u "uuu ==
 == u=uuu == u —
 u=uu == "uu — u —
 u=uu == uu"u=uuu —

ababababceddde.⁵

u —
 uuu == uu —
 u =uuuu —
 uu — uu —
 == uu ==

¹ E. E. T. S. No. 23.

² Schipper, vol. 1, p. 220.

³ Anglia, 1, p. 93.

⁴ Schipper, vol. 1, p. 219, given on the authority of Horstmann.

⁵ Insert a breve before last breve of sixth line.

This poem is assigned by Horstmann¹ to the Northern dialect, by Morris, as stated by Horstmann, to the West-Midland. The stanza is found in the Woodkirk plays in 'The Conspiracy' and 'The Ascension.' It is one of the favorite stanzas in the so-called Coventry cycle, occurring in the following plays—

- The Prologue,
- II. The Fall of Man,
- IV. Noah's Flood,
- X. Mary's Betrothment,
- XII. Joseph's Return,
- XVI. The Adoration by Shepherds,
- XXI. The Baptism of Christ,
- XXII. The Temptation.
- XXVI. The Entry into Jerusalem,
- XXVII. The Last Supper,
- XXIX. King Herod,
- XLI. The Assumption of the Virgin,
- XLII. Doomsday.

These Coventry plays are probably of East-Midland origin.² The same district appears to have been the locale of this stanza, which is found also in 'The Castell of Perseverance.'³ It would appear, therefore, that the poem of Susanna should be assigned to a poet south of York, whose style was affected by Northern extravagances in alliteration.

The stanza was also of late date, since it passed into the Moralities.

From a fusion of the septenar stanza with this East-Midland stanza arose a new type with the following characteristics—

1. Alliteration in greatest excess.
2. So great an overplus of unstressed syllables that the recitation must have simulated chanting when the integrity of the stanza was preserved.
3. Surreptitious stress increased the accents to five and six in a line.
4. The rime of the East-Midland stanza was adopted.

This measure, with the reiteration of alliteration, was considered the proper introduction for persons of dignity, and is used in all four cycles, although the Ch and the Co soften greatly the alliteration. As the actor of royal rank usually appears at the beginning of the

¹ Anglia, 1, p. 93.

² Pollard, p. XXXVIII.

³ Pollard, p. 64.

play, modification of the play in compliance with the taste of the period was an easy matter. This stanza, with various modifications, appears in York plays XXVIII, XXIX, XXX, XXXI, XXXIII, and stanzas or portions of stanzas, formed unmistakably upon the same verse pattern, are found in the Woodkirk, the so-called Coventry, and even in the Chester plays.

This stanza, as the earlier septenar, had a life history of change and deterioration. Sometimes the excessively long lines broke into two, with rining cæsuras and the development of new stresses. Such verses, in process of resolution, exist in Pilate's speech in the Ch play, 'The Resurrection :'

For I am prince pearles,
Most royal man of riches,
I may deale and I may dresse,
My name is Sir Pilate.

In these lines the alliteration has suffered injury, and the rime has been lost. They are a weak imitation, almost a prose version, of such lines as York XXXII :

For sir Pilate of pounce as prince am y preued
As renke most royall in richeste array—

and the Woodkirk 'Flagellation :'

Say, wote ye not that I am Pylate, perles to behold?

An earlier form of the same appears in W, 'Consp. & Captio :'

Cayphas.

Syr Pilate, prince of mekyllle price,
That prevyd is withoutten pere—

which lines form the beginning of an a b a b a b a b c d c d stanza.

Furthermore, the bonds of rime were loosened, and sometimes the long lines passed towards the boundaries of rhythmical prose. This is illustrated by Y XXXI, "And drawe to no drofyng, but dresse you to drede, with dasshis," where "drede" rimes with the second line below, and "dasshis" with the fourth; also by Y XXXII, l. 10, where "To knawe" has no affiliation with the verse structure, and calls to mind similar versification in legends and romances.

Again, the breaking of stanzaic structure by the indefinite extension of the pedes of the stanza, as in Y XXXII, stanza 2; in Co XV, in Joseph's second speech; in Sir Gawain and The Green Knight, and elsewhere, led to the establishment of a species of verse, riming in most cases it is true, but with an irregular succession of stresses and tending toward a rhythmical prose. An investigation of the transformation and relationship of this stanza would yield rich results, but we must leave it as a task for others.

A fourth stanza invites our attention. In the French a simple 4-accent couplet was popular at an early date.

Ex. 27.

v—v—v—v—
 v—v—v—v—
 v—v—v—v—
 v—v—v—v—

In this measure were written the ‘Roman de Brut’ of Wace, the ‘Roman de Rou,’¹ ‘Guillaume D’Engleterre,’ and many others. In English it is preserved in such ballads as ‘A mery Ballet of the Hawthorne Tree,’² and in other styles of verse too familiar for reference.

These couplets were early fashioned into stanzas by the insertion of a short line, riming with the second couplet, and became popular in the 15th century with the French writers of Miracles. The stanza occurs repeatedly in ‘Les Miracles de Notre Dame.’

Ex. 28.

v—v—v—v—
 v—v—v—v—
 v—v—v—v—
 v—v—v—v—

This type probably gave rise to the English stanza—

Ex. 29.

v—v—v—v—
 v—v—v—v—
 v—v—v—v—
 v—v—v—v—

but the method of riming is, regularly in English, the riming of similar verses, never in a succession of stanzas, as in French, by ‘concatenatio.’³

This stanza is found in the Woodkirk plays as follows—

- I. Creation, the character of Deus.
- X. Annunciation, the play exclusive of Deus.
- XI. Mary and Elizabeth.
- XII. The Crucifixion, together with other stanzas.
- XXVIII. The Incredulity of Thomas, with other stanzas.

It is used also for the second part of ‘Sir Ferumbras,’⁴ for ‘The Woman of Samaria,’⁵ for Minot’s ‘Edward in Brabant,’⁶ and elsewhere.

¹ Bartsch, col. 111, col. 143.

² Ritson, vol. 2, p. 44.

³ Cp. Schipper in index.

⁴ E. E. T. S. No. 34.

⁵ E. E. T. S. No. 49, p. 84.

⁶ Poems of Lawrence Minot, p. 13.

With the more difficult rime a a b a a b, this stanza occurs also in the Woodkirk plays—

VII. The Prophets.

IX. Cæsar Augustus.

XXII. The Flagellation, in the part of the Tormentors.

Also in the Chester play, *The Shepherds*, among other stanzas.

This stanza is interesting as the germ of the metrical-romance stanza, which was possibly rejected by the writers of drama as too monotonous. The following partial lists will illustrate its use—

a a b a a b c c b c c b.

Romance of Duke Rowlande and of Sir Ottuell of Spayne.¹

a a b a a b c c b d d b.

Amis and Amiloun,²

Libius Disconius,³

The King of Tars,³

Mary Legend, No. II.⁴

a a b c c b d d b e e b.

The Romance of Athelston,⁵

Emare.⁶

Romance of the Emporor Octavian,⁷

Erl of Tolous and the Emperes of Almayn,⁸

Le Bone Florence of Rome,⁹

Sir Isumbras.¹⁰

Rouland and Vernagu,¹¹

Torrent of Portyngale,¹²

The Wright's Chaste Wife,¹³

Sir Amadace,¹⁴ etc.

Certain other stanzas were of wide-spread use, and appear in the different cycles of *Mystery Plays*. Of their origin it is sufficient to say in general that they sprang, for the most part, from the Latin stanzaic forms of the church service, especially from the service of song. Some of them, also, show evident marks of French influence,

¹ E. E. T. S. No. 35.

² Külbing, No. 2.

³ *Ancient English Metrical Romances*.

⁴ Horstmann, p. 503.—Note. Külbing's criticism, *Amis and Amiloun*, p. XIV, of Horstmann's statement concerning the rime, is itself incorrect, as Horstmann speaks of the *Mary Legend*, No. II, but Külbing of the *Mary Legend*, No. I.

⁵ *Reliquæ Antiquæ*, vol. 1, p. 85.

⁶ *Ancient Metrical Romances*, vol. 2.

⁷ J. O. Halliwell.

⁸ G. Liddthe.

⁹ *Ancient English Metrical Romances*.

¹⁰ J. O. Halliwell.

¹¹ E. E. T. S. No. 39.

¹² E. E. T. S. Extra Series, No. 51.

¹³ E. E. T. S. No. 14.

¹⁴ Robson.

and it is probable that the sources of some are to be sought for in the Provençal. A general view, as exhaustive as seems necessary for our purpose, is appended. a a b a b. Ex. 30.



is found in six stanzas spoken by Lucifer, W I.

a a a b a b.

York VI, XXII, XXXVIII, XLII.

Woodkirk XIV, XXVII, XXXII, XXVI (in the part spoken by Jesus).

a a a b a a a b and a a a b c c c b.

Woodkirk XVII, XXIII (Mary's lament), XXIV (the Tormentors), XXIX (certain stanzas).

Coventry XIV (a portion of the play), XVI (stanzas by shepherds), XVII (stanzas by Magi, and certain 2-accent stanzas), XIX (one stanza), XXVII (by Judas in part), XXXII (by Jews and others), XXXIII, XXXIV (by Nychodemus), XXXV (in 4-accent and 2-accent verses), XXXVI (in part).

Chester. The whole Chester cycle was written by a poet who attempted to use the stanza a a b a a b, but frequently resorted to a a b c c b as an easier stanza, and sometimes lost his footing completely.

a a a a b c c c b.

Woodkirk III, XII, XIII, XVI, XX, XXI, XXII, XXIV (certain stanzas), XXX (in stanzas by demons).

Many modifications of these stanzas appear infrequently in the plays. We note in closing our review a favorite stanza of the Coventry plays, a b a b b c b c, from which it is but a step to Spenser.

Finally, we form from the foregoing examination of the stanzas of English in the mediæval period certain conclusions—

1. A distinctive stanza, formed from the septenar line, obtained in the district—to speak in general terms—extending from the Humber to the Forth; and was not used, except in a much altered form, outside of those limits.

2. The characteristics of this stanza were—

a) Two 4-verse, 4-stress pedes; a 4-verse or 6-verse 3-stress cauda.

b) The pedes rimed in two riming quatrains; the cauda originally rimed alternately, but variation was permissible.

c) The verse kept carefully the iambic movement.

d) The cæsura was uniformly placed after the second stress, exceptionally after the first and third.¹

e) Cæsuras and verses were masculine.

f) Alliteration was structural, i. e. confined to three stressed syllables in the verse.

3. This stanza suffered direct change in three ways—

a) By continual increase of alliteration.

b) Through the inordinate multiplication of unstressed syllables, especially in the first half-verses.

c) Through innovations in the riming of the cauda.

4. These changes were so pronounced in type and limited in time, that the stanza affords important evidence in dating poems relatively to each other.²

5. A stanza riming a b a b a b a b c d d d c was cultivated in East Anglia at a date somewhat later than that of the Northern stanza of pure type.

6. The Northern stanza, under the influence of the contiguous East Anglian stanza, formed a second distinct type.

7. This derived stanza developed as follows—

a) By the loosening of the bonds of stanzaic structure, the pedes were indefinitely extended, and the composition approached the bounds of rhythmical prose; or,

b) The voice failed to carry the excessive number of unstressed syllables, surreptitious stresses created a 5-stress line, or the verse broke into two lines with the development of new stresses.

8. A stanza a a b a a b c c b c c b was formed for rhythmical narrative, and became the vehicle of the metrical romance.

9. Other stanzas appear as directly dependent upon church sources and French influences.

10. A stanza a b a b b c b c closes the mediæval period. This statement applies more directly to the district immediately north of the Thames.

The cycles of Mystery plays present certain metrical characteristics as individual cycles—

1. The York cycle, with the exception of a few plays,³ retains one stanzaic structure through a play, or, in some cases, through a scene.

2. The Woodkirk plays show an attempt to adapt the stanza to the character, or at least to limit the use of a given stanza to one character in a given play.

¹ Cp. Ex. 19.

² Cp. Ex. 24.

³ Cp. York XII, XIII, XVI, XXIX, XXXI, XXXII, XL.

3. The Coventry plays exhibit prevailingly an interchange of three stanzas, the choicè apparently influenced only by a desire for variety.

4. The Chester plays are, as uniformly as an author of limited poetical resources could make them, cast in the mold of one stanzaic form.

The importance of the foregoing conclusions in determining the structure of the cycles of plays is evident. We proceed now to the defense of certain propositions relating to the cycles themselves.

XX.

A SURVEY OF THE CYCLES OF MYSTERY PLAYS.

In considering the cycles of plays as wholes, certain general structural characteristics appear. A discussion of these will prepare us for a more minute investigation of cycle construction.

I. The York cycle contains plays of widely different styles and vocabulary. Such plays as X and XI have little in common with XXXI and XXXII, and still less with XLVI. The differences are not such as arise from an unskillful re-working of an old play. Such scribal changes are found in Woodkirk 'Pharao,' when compared with York XI. They lead to the distortion of the stanza—

a) By the insertion of extra-stanzaic verses, as the quatrain in W after the first stanza, or the two verses separating the cauda from the pedes in stanza 22.

b) By the breaking of rime, as in stanza 25.

c) By the disarrangement or obliteration of the alliteration through the displacement of alliterative words by non-alliterative synonyms, as through the substitution of 'words' for 'saws' in l. 17, or by the complete loss of alliteration in l. 23.

d) By the destruction of the iambic movement, as in lines 21, 39, 52, 53, etc.

e) By the loss of a stress, as in line 28.

The differences between the above-named plays are not of this character, but fundamental. They concern—

a) The structure of the line, which in XXXI and XXXII is excessive in alliteration, inordinate in length, irregular in rime, and contains occasionally an unusual tag, as line 10, XXXII.

b) The riming, as in XLVI, where the repetition of 'hym,' 'us,' and the frequent use of words ending in 'ioun' is a habit unknown to the author of X and XI.

c) The vocabulary of the writer, in cases where there is no question of the substitution of a more familiar synonym. Examples of such usage are 'bewscheris' and many quasi-French words (cp. line 257, XXXI), and the employment of words of Latin origin which were used in riming as an ornament of style, especially such as end in 'ioun.'

These affectations in riming we recognize, from later plays and from other poetical works, as the ornaments of style at a period later than the origin of plays X and XI.

The municipal books of York show that expansion or contraction of the cycle, according to the present needs of the different crafts,¹ was of common occurrence. Such changes were made by the insertion or excision of whole scenes, or of whole plays, never by the fusion of plays. This will become clear as we proceed to the more minute analysis.

II. The Woodkirk cycle² is a collection of plays drawn from various sources. The compiler was a man of small poetical ability. His original verse was confined to couplets, with an occasional attempt at quatrains. He did not hesitate to appropriate good work wherever he found it, or to do violence to rime or measure, if he considered the thought unclear or contrary to accepted traditions.

As illustrations of his methods we cite—

1. For transition between selected parts of plays, the sixteen verses by cherubim between the first speech of Deus and that of

¹ York plays, pp. XIV to XXVI, notes.

² Hall, *Englische Studien*, vol. 9, p. 449, argues that Y is derived from W because it contains more alliteration! He arrives at this conclusion by trusting implicitly to Skeat's "Law of progress in alliterative poetry." Preface to *Joseph of Arimathea*, p. X. If, as Skeat formulates it, the progress is "from lines with two alliterated letters to lines with three, and in very late instances, to lines with four," from irregularity to regularity—although he admits that some of the latest examples of alliterative verse relapses into irregularity;—then I do not see how Hall's conclusion can be escaped. But the law seems to run as well from no alliteration to two alliterated words. In that case the re-creation of the old alliteration after the literature containing it had been buried for centuries would be little short of a miracle.

On the contrary, the old laws of alliteration were preserved by the North in continuous tradition. A sharp division must be made between structural alliteration, which conforms to ancient law, and alliteration for ornament, which gradually broke down the tradition of the fathers by swamping the essentials in a multitude of detail. We have already traced the progress of demoralization, and need only note that it, in conformity with other evidences, makes W the later dependent cycle so far as concerns the older plays of the collection.

Lucifer in Creatio. These couplets seem to be a condensation of some unknown play.

2. For introduction, the four couplets introducing the call of Deus, "Abraham, Abraham," in the play of Abraham.

3. For expansion of thought or to convey indirectly a lesson, many quatrains—sometimes only three verses—that are usually introduced between stanzas, as in 'Pharao' after l. 13,¹ l. 108, l. 120; in 'Pagina Doctorum' after l. 173, l. 174, l. 175.

4. For plays of transition where the compiler desired that certain incidents of the Bible should be made prominent, and could find no suitable play, the drama of Isaac—Isaac blessing Jacob—and that of Jacob—when Jacob was named Israel.

5. For plays that are formed from two or more plays by the use of selected stanzas or parts of stanzas, 'Flagellacio' and 'Extractio Animarum.' To this compiler, however, we are indebted for the preservation of the second 'Shepherd Play,' our earliest farce, and for the 'Judicium,' which, in the part of Tutivillus,² contains a satire on the fashions and manners of the day.

III. The Chester plays are, as Hohlfeld has well said, the work of a translator.³ I incline, however, to the opinion that the cycle was not French, but Anglo-Norman. The agreements with the other cycles are significant. They include—

1. 'The Salutation,' which shows agreement among Ch, Y, W, and S & T of Co.

2. 'The Purification,' which shows agreement among Ch, Y, W, and W of Co.

3. The Song of Jesus, where there is agreement between Ch and W.

4. In 'Christ Betrayed' the agreement between Ch and W in two lines accompanying the stroke of the sword.

To these may be added the distinctively English passages—

1. The gossips' song, Ch I, p. 53.

2. The part of Mulier, Ch II, p. 81.

It may be admitted that the Song of Jesus and the gossips' song are later additions, that 'The Purification' is an adaptation of the York play; still, 'The Salutation' is in the stanza of the cycle and probably by the same translator; therefore not all of these agreements arose from the late adoption of plays from other cycles.

¹ The verse-numbers apply to the corresponding York play.

² Cp. Tuteville in Rodentiner Osterspiel, pp. 49, 50. The coincidence appears to arise by independent derivation from 'toute-vilain.'

³ Anglia, vol. 11.

The wide agreement in these plays seems to me to argue a common knowledge of models existing in England. These models may have been in part Anglo-Norman, as the cycle of the Parish Clerks of London probably was. Most of them were undoubtedly church plays, would be often in Latin, possibly sometimes in Anglo-Norman, and often in English.¹

The continual presence of plays in the churches upon appropriate festival days must be assumed. Few remains of such plays are extant, but the known opposition of the reforming party to these plays, and the efficient zeal of King Henry's spoilers, would satisfactorily account for their destruction with the dispersion of libraries that were their proper repositories. The repeated enactment of imperative laws² forbidding plays in the churches, the presence of sepulchres in many churches to-day, and the occasional references to them in hostile writings,³ are conclusive evidences of their presence.

A mistaken interpretation of phenomena presented by the plays has often arisen through the failure to give due weight to two facts that concern the church customs of that day. It may be well to interrupt for a moment the course of this discussion to present those facts.

First, the solidarity of custom, as well as of belief, throughout the churches of England and France. This gave rise to a uniformity of method and expression in the mystery plays, which resulted in such striking similarities between plays formed on models used in the churches of England and those that arose from other models on the continent, that oftentimes direct dependence of the English play upon the French has been asserted, when, very possibly, each author knew no plays but those of his own cathedral church and immediate neighborhood. Churches are conservative bodies, slow to change their customs; therefore the church plays would diverge from their common type very slowly. They were viewed almost as parts of the liturgy.

¹ See the 'Mystery of the Burial of Christ,' 'Off the Wepinge of the Thre Maries,' and the 'Mystery of the Resurrection,' given in Wright's *Reliquiæ Antiquæ*, vol. 1, pp. 124-161. These are English church mysteries, which have been passed by without remark by writers upon this subject.

² The chief trace that the old hierarchy left of its dramatic existence was the acting of plays in the churches, which was finally ordered to be discontinued by proclamation in 1542, but was continued by choristers of St. Paul and of the Chapel Royal until the time of Chas. I.—Hone, p. 229. In 1603, canon 88 of the canons of the Church of England enacted that church-wardens should not suffer plays in churches, chapels, or churchyards.—*Encyclopædia Britannica* s. v. Theatre.

³ 'The Beehive of the Romish Church' speaks of the shows of Burial, Resurrection, etc.—Hone, p. 221.

Secondly, if the tradition was preserved through acted church plays rather than through the importation and re-casting of texts, the agreement between plays will be different in kind. The correspondence arising through the remodeling of plays we can study in the Woodkirk cycle, when compared with the York. They are found throughout the body of the text, usually in whole stanzas or in considerable portions of stanzas, wherever the thought seemed pleasing to the compiler. The agreements, arising from the recollection of the play as acted, will lie in certain notable actions that are conventionally present in every church play, and in the appropriate speech that goes with such action.

A few examples, drawn from French and Italian sources, and placed in comparison with the English plays, will illustrate my position.

In J,¹ p. 5, Dieu takes Adam and Eve by the hand and tells them of the tree.

In V T,² vol. 1, p. 34, Dieu takes Adam and Eve by the hand, pronounces benediction of marriage, and shows them the tree.

In W, p. 6, Cherubyn takes Adam by the hand and the Lord speaks about the tree.

In Ch, vol. 1, p. 24, God takes Adam by the hand after the discourse and causes him to lie down.³

Eve's address to Adam when offering him the apple—

In J, p. 8, Adam, chier compains et amis.

In Ch, vol. 1, p. 28, Adam, husbände, life and deare.

In Co, p. 28, My semely spouse and good husband.

In W the play is lost.

Adam eats—exclaims, then *a*) accuses Eve, or *b*) perceives nakedness, or *c*) combines the two.

In J, p. 9, Ha hay! je suy mal avoiez.

Ce morcel ne puis avaler.

In V T I, p. 49, O vray Dieu, de moy te souviennè!

Poore maleureux, que ay je fait?

In Y, p. 25, Allas! what haue I done, for shame!

Ille counsaile woo worthe the!

A! Eve, þou art to blame.

¹ J stands for *Mystères inedités* par Achille Jubinal.

² V T stands for *Viel Testament*.

³ A similarity here with V T leads to the supposition that God also led Adam into Paradise and showed him the tree.

In Ch I, p. 29, Out ! alas ! what aylith me ?

I am nacked well I see ;

Woman, cursed moth thou be.

In Co, p. 27, Alas ! alas ! ffor this fals dede,

My flesly frend my fo I fynde,

Schameful synne doth us unhede,

I se us nakyd before and behynde.

In W the play is lost.

The exclamations of devils in torment—

In J, p. 24, Belgibuz,—Harou, je suis tout forsonnez.

In V. T, vol. 1, p. 18, Lucifer,—Harau, Harau ! je me repens.

In Y, p. 5, Lucifer,—Owte, owte ! harrowe ! helples, slyke hote at¹
es here.

In W, p. 4, Demon,—Alas, alas, and wele-wo !

In N,² Diabolus,—Put off Harro, and well away.

In Ch, vol. 1, p. 17, Demon,—Out ! harrowe ! wher is our mighte.

The salutation—

In J, Gabriel — Ave Maria gratia plena.

Marie, Dieu te sault, Marie.

In D,³ vol. 1, p. 188, Gabbriello,—

Salviti Dio, che se' di grazia piena :

Teco si trova il gran Signore Dio.

In Y, p. 98, Angel—Hayle ! Marie ! full of grace and blysse,

Oure lord god is with þe.

In W, p. 74, Gabriel—

Haylle, Mary, and welle thou be,

My lord of heven is wyth the.

In Ch, vol. 1, p. 94, Gabriell—

Heale be thou, Marye, mother ffree,

Full of grace, God is with thee.

In Co, p. 112, Gabriel—

Ave Maria gratia plena, Dominus tecum !

Heyl, fful of grace, God is with the.

Mary's consent—

In J, p. 50, Ainssy soit fait com tu me dis.

In D, vol. 1 p. 189, Ecco l'Ancilla del Signore Dio :

Sia fatto a me secondo il tuo dir pio.⁴

¹ The use of the pronoun 'at' shows the expression to be old, otherwise the scribe would have changed it as elsewhere. The evident introduction of 'helples' to alliterate with 'harrowe' shows that the favorite expletive was considered necessary.

² N stands for Noah's Ark, Newcastle-on-Tyne, Sharp's Diss. p. 224.

³ D stands for A. D'Ancona, *Saere Rappresentazioni*.

⁴ See the extract of the church service on p. 179 of the same work.

- In Y, p. 99, Goddis handmayden, lo ! me here,
 To his wille all redy grayd.
 In W, p. 75, I am his madyn at his hand.
 In Ch, vol. 1, p. 35, Loe ! Godes cossen meklye here.
 In Co, p. 114, Se here the hand-mayden of oure Lorde,
 Aftyr thi worde be it don to me.

The stage direction—

In J, p. 50, Cy descende l coulom qui soit fait par bonne manière.

In D, p. 189, Allora lo Spirito Santo discende sopra di lei, ed in
 cielo si fa grandissima festa, e l'Angelo ritorna in
 cielo.

In Co, p. 114. Here the Holy Gost descendit with iij. bemys to
 our Lady, the sone of the Godhed vest with iij.
 bemys to the Holy Gost, the fadyr Godly with iij.
 bemys to the sone, and so entre alle thre to her
 bosom, and Mary seyth.

It is absurd to suppose, because of the above coincidences, that the writer of each English play had the Italian and French plays before him. The Bible narrative was familiar to each writer. This sometimes necessitates the action, sometimes the language seems the natural outcome of the situation ; both reasons would operate as conservative agents to prevent change in the church play. I think one is forced to admit that there must have been a uniformity of action and of expressions closely connected with action, in the important situations in church plays, similar to that obtaining in the liturgy itself, and that, in many instances, the agreements of plays in short passages and in the sequence of action is due to the essential identity of the church models from which these plays sprang.

But further, if it can be shown that the action of the Chester plays agrees with the action of other English plays at points where all or several disagree in action or accompanying words with the continental plays, a divergence of the English church plays from the customs of the continent will be established, and the Chester plays will fall into the category of English plays, though in the Anglo-Norman tongue.

Unfortunately, the French texts necessary for the settlement of this question are not accessible to me. I can simply contribute one item, and must pass on to other matters. A significant agreement between Ch and W may be a case in point. I refer to Peter's speech after cutting off the ear of Malchus,—

In Ch, vol. 2, p. 31, Goe nowe to Cayphas,
 And byde hym doe the righte.
 In W, p. 188, Go pleyn the to Sir Cayphas,
 And byd hym do the right.

The language in Y and in J is different, although the situation is the same. We return now to the discussion of the cycles.

IV. The so-called Coventry plays are, I think, the work of one author. They are of late date, I should say of the early part of the sixteenth century. They have little or no direct dependence upon the other cycles. It has been shown as probable that they were written in the northern part of East Anglia.

I am reluctant to advance a theory for their origin, since I cannot offer sufficient confirmatory data, but I would suggest that they may be the work of some author connected with one of the great religious houses of the Fen District. These plays appear to me to rest upon church plays that have received their development at the hands of those closely connected with the ceremonial of religious life.

It might be expected that plays, made in such a house for the instruction and diversion of rustics, would emphasize the homiletic element, and would draw largely upon the Apocrypha.¹ The frequent intrusion of Latin with explanatory verses was also a characteristic of church plays. The stanzas of dimeters, pp. 159, 164, 180, 348, 353, simulate the Latin hymns of the Christmas time and of the Resurrection service. A certain restraint pervades the plays, very different from the spontaneity of the York and Woodkirk plays.

It would seem that these plays were recast by one writer into cyclic form. The fragmentary condition of many stanzas may arise in part from imperfect re-working of the material; but this conclusion cannot be drawn with confidence, since at this date the alternation of stanzaic schemes within a single play or poem seems oftentimes to have been favored for the sake of variety. I have nothing to offer concerning the indications that the cycle was in the hands of a traveling troupe, monkish or otherwise.

V. The craft plays of Coventry were in close connection with the York and Woodkirk cycles, as is proved by the dependence of the Weavers' play of Coventry and the 'Pagina Doctorum' of Woodkirk upon York XX. A common source must, I think, be postulated for the Coventry 'Nativity,' the Chester 'Salutation,' and the York XII.

¹ For Apocryphal agreements in 'The Barrenness of Anna,' 'Mary in the Temple,' 'Mary's Betrothment,' etc., see Hone.

They
1468.

? Lyd
monk J

Whether this source is an earlier play, or whether each is independently based upon Luke, Chap. I, will be the theme of a later chapter.¹

VI. The cycle of Newcastle-on-Tyne has disappeared, except the play of Noah's Ark. This play has been grievously modernized, to the destruction of the stanzaic structure. Here and there a semblance of the original stanza can yet be detected and the stanza restored, but such instances are rare.

Noah Respondit.

Even wo worth thou fouled sin,
For all too dear thou must be bought,
God for thanks he made mankind,
Or with his hands that he them wrought:
Therefore or ever you blind,
You mind your wife and turn your thought,
For of my work I will begin,
So well were me all forth brought.

Y IX, stanza 12, contains the rime series—'synne,' 'blynne,' 'mankynne,' 'wynne,' which enables us to restore the above rimes, 'sin' = 'synne,' 'mankind' = 'mankynne,' 'blind' = 'blynne,' and thus to restore the sense of the fifth line. This is then a double quatrain stanza, or the pedes of a Northern septenar stanza, possibly similar to Y IX.

Other changes also are necessary. An improved reading for the first line would be—

Ever wo worth the fouled synne.

In the words, 'for thanks,' one fails to detect the verb 'vorþence,'² 'forthinke,'³ meaning 'repents.'

Other portions of the play were, without much doubt, written in another stanza. This, then, is a play with two or more stanza forms; probably a pieced play like some of those in W. The introduction of Deabolus is foreign to other known English plays, apparently, and indicates French influence, as does the stationary play-field of Newcastle. More than this we cannot determine from the scanty and corrupt remains of the Newcastle cycle.

From this cursory view of the cycles, we return now to the York cycle, to question it in regard to the interdependence of its different plays.

¹ See Chap. XXIV.

² Stratmann.

³ Halliwell.

XXI.

THE PARENT CYCLE OF THE YORK MYSTERY PLAYS.

As we have seen in the preceding chapter, the existing York cycle is a compilation, containing plays of very different styles and stanzaic structure. In the earlier discussion of the life history of the Northern septenar stanza, it became evident that this stanza passed through well-defined phases, of which one phase at a time dominated the writers of its day. Therefore, since the different life stages of this stanza are found in the present York cycle, it becomes possible to date the plays relatively to each other by their stanzaic structure.

The earliest form of the stanza found in the York plays—a structure showing already marked evidence of deterioration—is the stanza of plays II, X, XI, XXIII, XXIV, XXVII, XXXV, XXXVII, XLIV, and portions of XII, XV, XVII. This stanza is also found in a part of Woodkirk play XX, which has no correspondent in York. These plays are therefore older than York plays XXVIII, XXIX, XXX, XXXI, XXXII, which exhibit the stanza at a much later stage of its development.

The questions that immediately confront us are two: first, do these plays represent an earliest cycle, which has been extended at later and different periods by additions from one or more sources? and, secondly, are these plays the work of one author? These questions merit a careful investigation.

As regards the first question, it can be affirmed—

1. That these plays are certainly older than the remainder of the York plays, with the possible exception of a few plays of, as it would seem, church origin.
2. That they are the only plays of the York cycle, having a common stanza, that could possibly form a cycle.
3. That they are older than the Woodkirk, true Coventry, and so-called Coventry cycles.

The first point is proved by the stanzaic structure, which excludes all competitors, except for those stanzas directly dependent upon church or French influence.¹ The second position rests upon the fact that these plays include the Creation, Abraham and Isaac, the Christmas Cycle, the Crucifixion, and the Harrowing of Hell, the leading plays of every possible extended cycle. The third point requires further demonstration.

¹ See point 9, p. 251.

These plays are older than the Woodkirk and true Coventry cycles, because both W and Co borrowed from the York, though not from the extant text of the York. Since the text is a variant of the present York, it is probable that the borrowing was prior to the registration of the play. It is reasonable to suppose that actors' copies were collated with the registered play after the authoritative copy was in existence.

The relationship of author's MS., registered play, and actor's copy must be finally made out for each play, even—where there has been patchwork—for each scene separately. It is sufficient for our purpose here to state that, in many places, a text better than the present York can be established by the readings of the other cycles; therefore, in those plays at least, the borrowing was earlier than the registration.

Moreover, in plays of the early septenar stanza, W and Co borrowed from Y, not Y and these from a common original. The proof of this lies—

1. In the stanza, which does not occur without variation outside of the parent cycle.
2. In the evidence of damage suffered by the stanza at the hands of redactors, which is serious in W and Co, and but slight in Y.
3. In the fact that W pieces plays of Y with stanzas from other plays; see Y XXXVII.

As regards the question of authorship, I am of the opinion that the parent York cycle was the work of one author. This opinion rests upon characteristics of phraseology, riming words, style of treatment, uniformity of verse movement, cæsura, and general rhythm in stanzas—matters that must be elucidated *in extenso*.

We conclude, then,—

1. That there was a parent cycle of plays at York.
2. That W and the true Co borrowed certain plays from this cycle.
3. That this cycle was the work of one author.

What, then, were the plays that formed this earliest cycle? My hypotheses are that it contained—

1. All the plays of the characteristic stanza.
2. Y VIII and IX as well.
3. Also W, 'Conspiracio' from "Cayphas" to "Tunc dicet Sanctus Johannes."

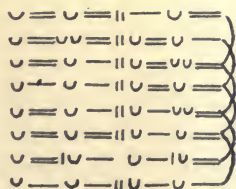
The evidence in favor of the admission of Y VIII and Y IX to the cycle will be considered first.

In Y IX the stanza departs from the standard in the cauda. The typical cauda is a quatrain; the cauda of IX is a sestet, riming c d c c c d. To my mind this riming series shows Southern influence. However, in every other particular,—alliteration, verse movement, cæsura, the agreement with X and XI is very marked. How much this may mean we see by comparing the stanza schemes of X, stanza 1;¹ IX, stanza 1;² and XXVI, stanza 4.³

It is well to remember that this Y XXVI is the play to which W 'Conspiracio' answers, and, as we hope to prove later, supplanted the earlier play of the York cycle, as being more in accord with the later taste.

The differences between these stanzas of IX and XXVI are more important than is the single circumstance of agreement in rime. They are the differences in alliteration and verse-movement that mark the degeneration of the stanza. XXVI is later than IX, and has its connections with XXX, XXXI, and the remainder of a small group of plays, of which the first supplanted the old 'Conspiracy,' and the rest presented the trials and various incidents prior to 'Christ led up to Calvary.' This whole group, through style, verse-movement, and disorganization of stanza, reveals interesting affiliations with the so-called Co, and with certain plays of W.⁴

In Y VIII the stanza is equivalent to the pedes of IX. It would be nothing surprising if an author who was experimenting with the cauda of his favorite stanza should try the experiment of dropping it altogether. The York cycle, however, contains another play in this double quatrain measure, play XXXIX, for the second stanza of which the following scheme can be formed—



This scheme is very different from that of XXVI. The verse-movement and alliteration agree well with those of VIII and IX, but the language seems of a later date.

It is well to remember that this was a favorite stanza for the four-accent verse that sprang from the iambic tetrameter of the Latin,

¹ See p. 240.² See p. 242.³ See p. 242.⁴ See p. 251.

and was widely cultivated in Southern England through French influence. In this verse alliteration was never structural, but, especially on the borders of the Northern district, simulated structural alliteration so closely at times, that other tests must be relied upon to detect the affiliations of the verse. In this case the tests will be those that would reveal a common authorship.

In the poems of this stanza the riming series and the riming words are important indications of authorship. In each typical stanza there must be four rimes, of which two must contain a series of four words each. Redactors may distort the stanza and modernize, or translate into another dialect, the riming words; still, so much of the original riming system will remain intact that restoration is commonly a comparatively simple task.

Furthermore, the riming series were few, and the number of words of one rime was limited. The poets were so closely bound by the fetters of their stanza that a new riming series of six words was a discovery of prime importance, and the changes were rung in series of four almost to the limits of possible permutations.

This test, then, of a riming series and of the words that form such a series is easy of application, and would afford a ready solution of the problem of authorship, were it not for the remarkable uniformity in these series as used by different writers. Here lies a serious difficulty. Certain riming series were common to all writers of English for centuries, if, indeed, they are not now employed by the authors of hymns. Such are the rimes upon 'be,' 'here,' 'will,' 'noght,' 'land,' etc. Other correspondences were confined to certain poems in common with the York cycle; thus the Northern Gospel of Nicodemus shows such agreements with the plays of the early septenar stanza that one is led to suspect the existence of a school of poetry¹ with headquarters at York, but with disciples throughout the North, and continuing through several steps of stanzaic change.

The necessity of a division of riming series into three classes becomes, therefore, apparent. These classes are formed of—

1. Those series that were used by all writers of Middle English verse with masculine rimes.
2. Those series that seem to mark a common tradition among certain poets working in a somewhat similar manner.
3. Those series that appear to arise from the individual choice of the author.

¹ This subject merits a special investigation.

Our present search is concerned with the third division only, although the recognition of the other categories will aid us in the interpretation of the data obtained.

For these rime tests I have selected Y X, as a play undoubtedly belonging to the parent cycle; Y IX, the one whose authorship is in question because of the irregular cauda; Y VIII, one in a different stanza through loss of the cauda; and Y XXXIX, one agreeing in every particular, so far as it has yet been examined, with VIII. As a measure for the plays I take Y XI, which is unquestionably of the parent cycle.

XI agrees with X and with no other in rime series upon 'wiste,' 'fell,' 'name,' 'wise,' 'fayle,' 'said,' and 'kepe.'

The identical rimes among these are—

kepe, schepe, X, 23, XI, 8.
same, hame, name, blame, X, 4.
same, hame, blame, name, X, 31.
wise, sacryfice, X, 7 and X, 19.

The included rimes are—

fell, telle, X, 17.
telle, fell, emell, Israël, XI, 3.
dwelle, telle, XI, 9.
tell, Israël, dwell, emell, XI, 16.
tell, Israël, hell, dwelle, XI, 18.
name, same, XI, 20.
name, blame, same, shame, XI, 15.
same, hame, name, blame, X, 4.
same, hame, blame, name, X, 31.
salde, grathide, X, 13.
grathid, brayde, saide, payed, X, 16.
saide, paied, XI, 30.

These rime series number 24.

XI contains 63 different varieties of rime.

X contains 47 different varieties of rime.

The rime series of XI number 134.

The rime series of X number 129.

The agreeing rime series constitute 12/134 of all in XI, and 12/129 of all in X.

The riming words agreeing number 14 in 406 lines of XI, and in 380 lines of X, or 1 in 27 lines of X.

XI agrees with IX and with no other in rime series upon 'before,' 'men,' 'borne,' 'flitte,' 'mene,' 'greve,' 'enresse,' and 'marre.'

Identical rimes among these are—

wore, before, sore, (no) more, IX, 20.
before, wore, sore, more, XI, 23.
sesse, enresse, IX, 17.
sese, encrese, XI, 4.

Included rimes are—

wene, mene, IX, 5.
mene, seene, grene, wene, XI, 9.
greve, myscheue, IX, 8.
meve, greve, leve, myscheue, XI, 24.
sesse, enresse, IX, 17 and XI, 4.
pees, press, sees, encrese, XI, 2.
pees, sesse, messe, enresse, XI, 14.

pees, encesse, sese, lese, XI, 28.

ferre, warre, XI, 28.

ferre, marre, narre, warre, IX, 5.

These rime series number 30.

XI contains 63 different varieties of rime.

IX contains 52 different varieties of rime.

The rime series of XI number 134.

The rime series of IX number 92.

The agreeing rime series constitute 18/134 of all in XI, and 12/92 of all in IX.

The riming words agreeing number 20 in 406 lines of XI, and in 320 lines of IX, or 1 in 16 lines of IX.

XI agrees with VIII and with no other in rime series upon 'fall' and 'newe.'

Among these there are no identical rimes.

Included rimes are—

newe, trewe, XI, 12.

trewe, hewe, brewe, newe, VIII, 3.

sewe, newe, rewe, trewe, VIII, 14.

newe, trewe, rewe, sew, XI, 33.

These rime series number 7.

XI contains 63 different varieties of rime.

VIII contains 29 different varieties of rime.

The rime series of XI number 134.

The rime series of VIII number 38.

The agreeing rime series constitute 4/134 of all in XI and 3/38 of all in VIII.

The riming words agreeing number 7 in 406 lines of XI, and in 151 lines of VIII, or 1 in 21 in VIII.

XI agrees with XXXIX and with no other in no rime series.

XI contains 63 different varieties of rime.

XXXIX contains 18 different varieties of rime.

The rime series of XI number 134.

The rime series of XXXIX number 40.

XI agrees with IX and X and with no other in 20 rime series.

XI agrees with VIII, IX, and X and with no other in 65 rime series.

XI agrees with XXXIX, IX, and X and with no other in 30 rime series.

VIII and IX, not XXXIX, have 11 series in common.

VIII and XXXIX, not IX, have 1 series in common.

IX and XXXIX, not VIII, have 4 series in common.

VIII, IX, and XXXIX, have 9 series in common.

The more important of the above results may be tabulated as follows—XI in agreement with—

	X.	IX.	VIII.	XXXIX.	IX and X.	VIII, IX and X.	IX, X, XXXIX.
Riming sounds	7	8	2	0	--	--	--
Riming series	24	30	7	0	20	65	30
Fractional part of total number of rimes in measured play	1/10	1/7	1/12	0	1/18	1/4	1/9
Word agreements... }	1 in 27 lines.	1 in 16 lines.	1 in 21 lines.	0	--	--	--

This table reveals a closer agreement between IX and XI than between X and XI, yet X and XI have the same stanzaic structure. It establishes the connection of VIII with the cycle, since VIII ranks with X in agreement with XI, and indeed ranks above X, when we consider that VIII is confined to four-word series, as it has no cauda, and that this author appears to express his preferences, so far as they depart from the literary conventions of his day, more often in the two-word series of the double quatrain. It sharply separates XXXIX from VIII. That this division is not the result of accident is further demonstrated by the behavior of XXXIX in combination. The common rimes of VIII, IX, and X agree with XI in one rime in four, but the common rimes of XXXIX, and IX and X, agree with XI in only one rime in nine.

In accordance with these results, we conclude that VIII and IX belong to the cycle, and that XXXIX does not. As a confirmatory fact, we note that the subjects of plays VIII and IX are interdependent. If one play belongs in the cycle, the other must go with it.

The third hypothesis must now be considered. Is W 'Conspiracio' from "Cayphas" to "Tunc dicet Sanctus Johannes" the work of the author of the York cycle?

This question should admit of an answer through the rime tests employed in the preceding investigation. It is not necessary to give the steps in detail. The results obtained for comparison with those of the table are 8, 31, 1/6, and 1 in 18 lines, a confirmatory result.

Let us beware, however, of accepting these tests as absolutely conclusive of single authorship. They do seem to establish a common membership in a parent cycle, to separate the work of one age from that of another, but the distinguishing of individual authorship within a school of literature is a very different matter. The number of rime series known to the Northern writers was limited. Individual preferences had but little freedom. A similar test made upon the first four hundred lines of the Northern Evangelium Nicodemi gives nearly as favorable an answer for single authorship; yet it seems almost certain that this poem is by a different author of the same school, probably of a slightly earlier date.

The poet of the Nicodemus was individual in his use of riming plurals, 'dedes,' 'lawes,' of rimes upon 'now,' 'stout,' 'house,' for his fondness for certain series, 'Cayphas,' 'pas,' 'was;' 'Pilate,' 'gate.' The latter he uses seven times out of eleven rimes on 'gate,' although the rime itself is found in none of the plays examined excepting once in XI. In these details, meagre it is true, and of

little value in the days of literary liberty, but significant when they appear in work that knew no innovations, one comes to feel that here is a personality, seeking expression that shall not be an echo.

Through a like scrutiny the literary workmanship of these plays reveals to the mind of the investigator evidences of unity of treatment that, to my mind, are worth far more than rime tests.

Again, these results from rime tests must be received with caution for two additional reasons; first, because the text needs thorough emendation, and the quality of the riming sounds must be established by wide comparisons, together with the careful definition of sub-dialects, before we can form our categories with confidence; and, secondly, because the classification of data has not been extended over a sufficiently wide area to admit of safe generalization. These are tasks for many scholars. My purpose is accomplished, if my data are sufficiently accurate to establish the unity of the parent cycle. To that extent I believe them trustworthy, and also that, taken in conjunction with many rather intangible stylistic evidences, they form a reasonable basis for belief in a single authorship.

Let us see, then, what plays constitute this parent cycle. The list¹ is as follows—

The Parent Cycle.

- Y II, The Creation, to the fifth day.
- Y VIII, The Building of the Ark.
- Y IX, Noah and his Wife, the Flood and its waning.
- Y X, Abraham's Sacrifice of Isaac.
- Y XI, The Departure of the Israelites from Egypt, the Ten Plagues, and the Passage of the Red Sea.
- Y XII, The Annunciation, The Prologue.
- Y XV, The Angels and the Shepherds.—The first three stanzas and the last four, omitting the comic episode.
- Y XVII, The Coming of the Three Kings to Herod; the Adoration.—The Salutation, stanzas 22, 23, 24, has perhaps been reworked, or may have been written in accordance with established custom. Salutations of similar style appear elsewhere in mediæval poetry.
- Y XX, Christ with the Doctors in the Temple.
- Y XXIII, The Transfiguration.
- Y XXIV, The Woman taken in Adultery. The 'Raising of Lazarus.

¹ Cp. Hohlfeld in *Anglia* 11, p. 248.

W XX, Conspiracio—From "Cayphas" to "Tunc dicet Sanctus Johannes." Supplanted in York.

Y XXVII, The Last Supper.

Y XXXV, Crucifixio Christi.

Y XXXVII, The Harrowing of Hell.

Y XLIV, The Descent of the Holy Spirit.

Concerning the above plays a few remarks are necessary. Y II is a monologue. Y III is like it in verse movement, rimes, and stylistic peculiarities, but is written in quatrains. Y II cannot stand alone. There must have been either a continuation, that rehearsed the creation of Adam and Eve, and was superseded by Y III, or Y III must have been in the parent cycle.

Y III has been transcribed repeatedly. Two copies of it stand in the Register.¹ It has been greatly modernized by a scribe of Southern proclivities. 'Sall' occurs 24 times in Y II, 'schall' not at all; 'schall' occurs 19 times in Y III, 'sall' not at all. 'I' is found 28 times in Y II, 'y' not at all; 'I' is found 12 times in Y III, 'y' occurs 6 times. The rimes agree sufficiently well. Y II has 32 varieties of rime; Y III, 28 varieties. The two plays agree in 15 rimes.

If we knew more of the method of presentation, we might be able to judge better of the relationship of these two plays. Y II is a monologue. I suspect that it was largely explanatory of a picture pageant carried upon the pageant wagon. Perhaps the pictures were successively exposed to view, as different portions of the world were created. The parallel to the pageants of royal entry with one speaker, who explained the tableau, is sufficient.

In Y III, it would seem that the tableau stood fully formed. The speaker points to each part as he says—

In heuen ar aungels faire and bright,
Sternes and planetis per courses to goo,
þe mone serues vnto þe nyghte,
The sonne to lichte þe day also.

In erthe is trees, and gresse to springe,
Beestes and foules, bothe grete and smale,
Flsshys in flode, all other thyng,
Thryffe and haue my blissynge alle.

But the words of Adam and Eve appear to me conventional, as bearing marked traces of the church play. Y III may be an old church play that has supplanted the original play of the cycle.

¹ York Plays, p. 14.

There survives a curious proof that there was a Northern play on this theme, and in the characteristic stanza. On the margin of the MS. are written, as following line 44, these lines¹—

And leyd your lyves in good degre,
Adam here make I the
a man of mykyll myght.
Thys same shall thy subget be
And Eve her name shall hight.

These lines form the cauda of a stanza, together with the last verse of the preceding pedes. They are in an Elizabethan hand, and must be a quotation from some play then extant. Can it have been the Beverly play? In any case it establishes the existence of such a play, and reinforces the hypothesis that the play of the parent cycle had been supplanted by a church play of an early type. The problem must be left for the present unsolved.

Y XI closes with a song, W adds a tribute of praise.

In Y XII, the prologue only belongs to the work of our author. Whether the remainder of his play has given place to a later play, or whether he took a popular play, wrote a prologue for it, and put it into his cycle, is a question to be determined with the examination of all the plays that are paraphrases of Luke I. This will be the theme of a later chapter.

The author of this cycle did not utilize the comic episodes. As the plays departed further from the church play, the dramatic element became more prominent, and a literary convention called for some humorous remarks about the angels' singing. This episode was then inserted, probably with little excision.

Y XX will be given a special examination in connection with the plays derived from it.

Y XXIV has lost a leaf at a very important action. Jesus has evidently written on the ground the sins of the accusers, wherein the play agrees with the theological notions of the day.²

W XX begins with the introduction of Pilate, with verse movement after the later fashion. The differences between the earlier and later styles are well exemplified in the stanzas assigned to Pilate and Caiaphas at the beginning of the play. The later part of this play is in a different style, and covers the incidents of the Last Supper, as does Y XXVII. The speech of Jesus is a paraphrase of portions of the Gospel of John. This will be considered in another chapter.

¹ York Plays, p. 15.

² See the Coventry Mysteries, p. 220.

Whether a cycle would close with the Descent of the Holy Spirit is to my mind somewhat doubtful. The Italian short cycle already cited¹ exhibits a play of this character, with the plays of Burial and Resurrection as introductory. It is possible that it was considered on theological grounds a fitting close, though most cycles passed on to the Judgment Day. On the other hand, it would be nothing surprising, if the Mercers had discarded their old play for a play of the later fashion. The York play, 'The Judgment Day,' is a late play, and will be examined in another chapter.

These sixteen plays, then, can be segregated as an ancient cycle, which stood as prototype for the craft cycles of Woodkirk and Coventry, and, probably, of Beverly. There are reasons, however, for believing that the demand for expansion came soon, and that certain additions had already been made when the Woodkirk compiler looked to York for a part of his material.

We will next consider the status of the plays of the parent cycle in the other cycles, and then examine into the evidences for the expansion of this cycle prior to the establishment of the Woodkirk plays.

XXII.

THE PARENT CYCLE IN THE WOODKIRK PLAYS.

The following plays of the parent cycle are found, in whole or in part, in the Woodkirk plays. Y XI = W 'Pharao;' Y XVII = W 'Oblacio Magorum,' one stanza only; Y XX = W 'Pagina Doctorum;' Y XXXVII = W 'Extractio Animarum.'

The relation of W 'Pharao' to Y XI can be best shown by contrasting corresponding verses that shall be as nearly consecutive as possible. I have chosen the first twenty-three lines of the York play; the verse that seems to me the nearest to the original is given as the second in each case, and the reason for my decision is suggested by the word following. These comparisons can hardly be classed as text emendations—any authoritative settlement of the questions arising would lead me too far afield—but they will serve to illustrate the relative purity of the texts.

O pees, I bidde þat noman passe, Y, 1.

Peas, of payn that no man pas, W. Alliteration.

And take good hede of hym that has, W.

And takes gud heede to hym þat hasse, Y, 3. Cp. XXXVII, 1. 37.

¹ See p. 201.

- Youre liff all haly in his hande, Y, 4.
 Your helthe alle holy in hys hande,¹ W. Alliteration.
 I am hys hayre as age wylle has, W.
 I am hys hayre as elde will asse, Y, 7. Elde, asse.
 I wold my myghte were knowne, W.
 I will my myght be knawen, Y, 11. Tense.
 And of youre wordes looke that ye seasse, W.
 And of youre sawes I rede you sees, Y, 17. Alliteration.
 And at my liste lose liff and lyre, Y, 20.
 And to my list bowe lyfe and lyre, W. Unstressed alliteration.
 My Lord, if any here were, W.
 My lorde, yf any were, Y, 21. Verse movement.
 If we myghte com thaym nere, W.
 And we wist whilke thay were, Y, 23. Alliteration.

With these comparisons we place the following additions and omissions. W adds—

- After stanza 1. Full low he shalle be thrawne
 That harkyns not my sawe,
 Hanged by and drawne,
 Therfor no boste ye blawe.
 After stanza 9. Do of thy shoyes in fere,
 Wyth mowth as I the melle,
 The place thou standes in there
 Forsoth, is halowd welle.
 After stanza 10. Bot I wylle not so do,
 In me if thay wylle trast
 Bondage to brynge thaym fro.
 Therfor thou go in hast.
 In stanza 22. In no mans time that ever was borne.
 Pharao. Telle on, belyfe, and make an end.
 In stanza 28. Yit were it better that thai yede.
 W omits—
 In stanza 22. Sir kyng, we banne þat we wer borne,
 Oure blisse is all with bales blende.
 In stanza 25. Als wele on myddyng als on more.
 In stanza 28. Lorde, war they wente þan walde it sese,
 So shuld we save vs and our seede.
 also, Late hym do fourth! þe devill hym spede!

Y stanza 31 is paralleled by W. The stanza illustrates the methods by which W often reduces a 4-stress verse to a 3-stress line. The rime series, 'pay,' 'betray,' 'garray,' 'slay,' makes it probable that this stanza is an excerpt from some other play.²

- Y, stanza 31. For at oure will now sall we wende,
 In lande of lykyng for to lende.
 i. puer.—Kyng Pharo, that felowns fende,
 Will haue grete care fro this be kende,
 Than will he schappe hym vs to shende,
 And sone his Ooste aftir vs sende.

¹ But 'helthe' is a favorite word, ep. Y XXXVII. W uses 'helth' for 'heeel,' lines 38, 106.

² See p. 267.

- Moyses.—Beis noght aferde, god is youre frende,
 Fro alle oure foees he will vs fende.
 þarfore comes furthe with me,
 Haves done, and drede you noght.
- ii. puer.—My lorde, loved mott þou bee,
 þat þus fro bale has brought.
- W.—Com furthe, now salle ye weynd
 To land of lykyng you to pay.
- Primus Puer.—Bot kyng Pharao, that fals feynd,
 He will us eft betray;
 Fulle soyn he wille shape us to sheynd,
 And after us send his garray.
- Moyses.—Be not abast, God is our freynd,
 And alle oure foes wille slay;
 Therfor com on with me,
 Have done and drede you noght.
- Secundus Puer.—That Lord blyst might he be,
 That us from baylle has broght.

Certain expressions and substitutions of words for differences in dialects are worthy a passing notice. A favorite oath in W—‘the ragyd dwylle,’ l. 251, 325, 403.

- ‘in mynde’ for ‘haue I mende,’ W, 121. Misunderstood.
 ‘way’ for ‘wothis,’ W, 138. wothis = harm. Misunderstood.
 ‘lepre’ for ‘serpent,’ W, 154. Criticism of his text.
 ‘socoure’ for ‘belde,’ W, 180. Dialectal change.
 ‘Brethere’ for ‘Beeths’ (?), W, 197.
 ‘wyle’ for ‘wynne,’ W, 220.
 ‘loselle’ for ‘lurdayne,’ W, 229.
 ‘wyth’ for ‘Hopp,’ W, 245. Dialectal change.
 ‘trow’ for ‘hopp,’ W, 275 (?).
 ‘lang’ for ‘lande,’ W, 282.
 ‘bond’ for ‘garre feste,’ W, 308. Dialectal change.
 ‘myst’ for ‘myrke,’ W, 344. Dialectal change.
 ‘fals’ for ‘felowns,’ W, 363 (?).

These changes for dialectal reasons probably mark not alone a difference of vocabulary in the two districts, but also a change of obsolescent words for those of accepted currency. This is another proof that the compilation of the Woodkirk cycle is considerably later than the date of the parent cycle of York.

W ‘Oblacio Magorum,’ to which Y XVII corresponds, shows but slight indebtedness to the York play. The greater portion of the play is in the stanza a a a b a b. This was a favorite stanza for church poetry. The play was universally given in connection with the Christmas service. It is probable that the compiler incorporated a church play into his cycle. One of two alternatives is certain, either he had the York play before him, or at a later date the York introduction of the angel displaced the original message.

From the compiler’s known method of work, I judge that he compared the church play with the York.

The 'Nuncius' enters with the York introduction, "Mi lorde ser Herode." Mary salutes the Magi with the same words as in York, "Sir kynges." These agreements, however, do not necessarily argue a borrowing from York. They may be conventional entrances widely adopted in church plays.¹ Many other characteristics agree in general treatment, as might be expected with common clerical traditions of more than a century's acceptance.

In some points, however, these plays follow different traditions. We know, for example, from the Latin plays extant, that the introduction of the Doctors with their books² was common,³ and that sometimes the kings were summoned² by a messenger, sometimes appeared unannounced. In these particulars W and Y follow different models. This would seem to argue that the play in question was used in some church not in close affiliation with York, possibly in the Midland district.

The direct appropriation of material from the York play is confined to one stanza, stanza 27 of the York play.⁴ This is taken without change other than a re-arrangement of the cauda by the transposition of a verse. The original rime a b a b becomes a b b a in the Woodkirk play.

Y XX=W 'Pagina Doctorum,' true Co 'The Weavers' Pageant, Ch 'The Purification,' so-called Co 'Christ Disputing in the Temple.' The relationships here are so significant, and the results flowing from them so important, that a separate chapter will be given to this play.

Y XXXVII was made the basis for W 'Extractio Animarum,' and some unknown play was used to supplement it. This play, therefore, illustrates the reverse of the method pursued in 'Oblacio Magorum,' but agrees with 'Pharao.'

The first eight verses of Y, twelve of W, are different. In the W verses I seem to detect a lyric, carol-like quality, such as seems present in portions of W 'Conspiracio et Captio.'

W adds the following passages. Before stanza 5 Isaias speaks eight verses—

Isaias. Adam, through thy syn
Here were we put to dwelle
This wykyd place within,
The name of it is helle;
Here paynes shalle never blyn
That wykyd ar and felle,
Loue that lord withe wyn
His lyfe for vs wold selle.

¹ See p. 258.

² So in the play of the twelfth century at Nevers, Romania, vol. 4, p. 4. Also cp. Freising and Orleans plays, p. 83.

³ Not so in Jubinal, *Mystères inédits*, vol. 2, p. 95.

⁴ This was discovered by Hertrich, p. 4.

Before stanza 9. Rybald. Sen fyrst that helle was mayde,
 And I was put therein
 Sicke sorow never ere I had,
 Nor hard I sicke a dyn;
 My hart begynnys to brade,
 My wytt waxys thyn,
 I drede we can not be glad,
 Thise saules mon fro us twyn.

With considerable re-arrangement of parts, after the words, "Attolite," etc., the line, "Out, harro, out! what deville is he." This confusion arises from the rejection of the translation accompanying the Latin lines.

After line 140. If that brodelle com ne
 With vu ay won he shalle.

After line 126. David says—Nay, withe hym may ye not fyght,
 For he is kyng and conqueroure.
 in the place of— I lered leuand with-outen lees,
 He is a kyng of vertues clere.

After line 130. Of hym commys alle this light
 That shynys in this bowre.

After line 136, eight lines are inserted, the last eight of stanza 12 having been used earlier.

How sir Sathanas, com nar
 And hark this cursid rowte!
 Sathanas. The deville you all to-har!
 What ales the so to showte?
 And me, if I com nar
 Thy brayn bot I bryst owte.
 Belzabub. Thou must com help to spar,
 We are beseged abowte.

A transposition of Jesus's speech takes place, and the discarding of the Latin, while the translation is retained—Y gives both—is made the excuse for the introduction of two additional lines.

And let my folk furthe gone

 Wheder ye wille or none.

Before stanza 17. Rybald. What art thou that spekys so?
 Jesus. A king of blys that hight Jesus.
 Rybald. Yee, hens fast I red thou go,
 And melle the not with vs.
 Belzabub. Oure yates I trow wille last,
 Thay ar so strong I weyn,
 Bot if oure barres brast
 For the thay shalle not twyn.

Before line 198, in place of—Telle lucifer alle is unlokynne.
 Belsabub exclaims—Harro! oure yates begyn to crak,
 In sonder, I trow, they go,
 And helle, I trow will alle-to-shak;
 Alas, what I am wo!

The last two additions improve the dramatic quality of the action.

Before line 201, Satan exclaims,

Yee, hangyd he thou on a cruke.

Before stanza 26, Sathanas. Whi, and wille thou take theym alle me fro?

Then thynk me thou art vnkynde;

Nay I pray the do not so,

Vmthynke the better in thy mynde.

Or els let me with the go,

I pray the leyfe me not behynde.

Jesus. Nay tratur, thou shalle won in wo,

And tille a stake I shalle the bynde.

This serves for the expansion of a favorite motive. Before line 349, a substitution of four verses by Jesus for two by Satan.

Satan. Allas! for dole, and care,

I synke in to helle pitte.

Jesus. Com now furthe my childer alle,

I forgyf you youre mys;

Withe me now go ye shalle

To joy and endles blys.

These excerpts are evidently full double quatrain stanzas in four cases, viz: before stanzas 5, 9, and 26, and in stanza 12. Before stanza 17 are two half stanzas, and single half-stanzas occur before lines 198 and 349. I think it safe to conclude that the play was written in double quatrain stanzas.

Whether these stanzas were composed of 4-stress verses is a more difficult question. These excerpts are prevailingly 3-stressed, but our redactor often reduces 4-stress lines to 3-stress by dropping adverbs, connectives, and unimportant words; thus in stanza 25, lines 2, 7, and 8, and in a notable way lines 198-200.

I do not think that structural alliteration was present, though this author sometimes effaced it beyond recognition. I conclude from the above considerations that the play was not a Northern play.

The redactor followed his own judgment also in the matter of excision. It is not necessary to quote the lines of the York play that he dropped. They are, inclusive, lines 15-18, stanza 3 entire, lines 51-2, 55, 58, 60, 122, 124, 127-8, 181, 183, 339-40, 343-4, 347-8.

In some few particulars the W text is more accurate than the Y; Y, line 370—

Ofte tymes tolde vntill vs,

is assigned with the remainder of stanza 31 to 'John Baptista.' In his mouth it lacks point, as he is a new-comer to hell. W gives the last four lines of the stanza, including this line, to Moses, which makes the line in character. Y, line 113, gives A for the proper name which W gives as Anaballe. Y, line 135, reads by blunder of the scribe 'lady' where W writes correctly 'lad.' The aid that W can

afford toward a restoration of the text is, however, much less in this play than in Y XI.

There are evidences that the author of W had a slightly illegible copy of Y. Such mistakes as 'fraude' for 'frewte,' line 10; 'night' for 'light,' line 85; 'bright' for 'sight,' line 90; 'shalle the sow' for 'telle the nowe,' line 218, point to a difficulty of decipherment.

Dialectal changes similar to those made in Y XI¹ occur.

'boght' for 'getyn,' l. 11.	'tokyn' for 'signe,' l. 19, 41.
'shedyng' for 'bying,' l. 12.	'myrth' for 'grace,' l. 20.
'wille' for 'schall,' l. 13, 22.	'know' for 'schewe,' l. 22.
'helth' for 'heelee,' l. 38, 106.	'can' for 'gune,' l. 47, 286.
'darknes' for 'mirke,' l. 53.	'water' for 'floode,' l. 76.
'shewid' for 'mustered,' l. 86.	'thurt' for 'neyd,' l. 242.
'ment' for 'preched,' l. 291.	'wille' for 'liste,' l. 313.
'trew' for 'soth,' l. 327.	'sete' for 'selle,' l. 342.
'In blys to dwelle' for 'wonne in mirthe,' l. 228.	
'It shalbe lang' for 'all schall nogt gang,' l. 303.	

'Rebald,' l. 99, is understood as a proper name, and, as 'Rybold,' is assigned to one of the devils. 'Glory' for 'gilery,' l. 160. Now 'gilery' means 'deceit,' consequently, this guess was rather wild. 'Ilke' for 'obitte,' l. 269. This attempt to Anglicize the Latin 'obit' was not appreciated. The indebtedness of W to the York cycle is not confined to these plays of the parent cycle. We shall return again to the discussion in a later chapter.

XXIII.

THE WOODKIRK PLAY, 'CONSPIRACIO ET CAPTIO.'

This play, which has preserved a fragment of the parent cycle, lost to the York cycle, is a pieced play, containing, within the compass of a single play, work of the earliest and of the latest period, as well as something by that author whose plays mark the beginnings of English comedy. It is a canto, containing in its eight hundred and eighty-five verses specimens of almost every age and style of mystery play from the date of separation from the church service until the spirit of the Reformation transformed the mystery into the morality, the chronicle history, and the comedy.

¹ See p. 273.

A. The introduction consists of six stanzas by 'Pilatus' in the late style.¹ The verses of the first stanzaic section might easily be read with five or six stresses.² The rime is very striking, a a a a b c c c b.

This same stanza, with more or less irregularity of structure, is found in nine plays: 'Processus Noe;' 'Prima Pastorum;' 'Secunda Pastorum;' 'Magnus Herodes;' 'Conspiracio et Captio,' first six stanzas; 'Colaphizacio;' 'Flagellacio,' from 'Primus Tortor' to 'Johannes Apostolus;' 'Processus Talentorum,' perhaps, though the confusion is extreme; the devil play in 'Juditium,' which is the development of a minor motive in the York 'The Judgment Day.'

These plays are notable in that they contain the first attempts in English literature at the construction of a comedy of manners. In other mystery plays we find shrewd references to existing customs, comic episodes for the diversion of the audience; thus in Ch, 'Mulier' in 'The Harrowing of Hell,' Joseph's part in 'The Weavers' Pageant,' and elsewhere, but here only does the comedy seek its own ends with dramatic movement.

There is an evident attempt at faithful presentation of the life of the day. The detail of the meal in 'Prima Pastorum;' the farce, the complaints about landlords and taxation, against the weather, the remarks about the burden of many children in poor families, the fondness for proverbs, and the comments upon wedlock—all of which occur in 'Secunda Pastorum'—mark this writer as the herald of a new era, the pioneer of an advance in English literature.

The later satire of manners is fitly introduced by him. Tutivillus in 'Juditium' is a precursor of the Vice, far more trenchant and dramatic than many a later Vice, whose remarks lay bare the follies, extortion, and oppression of the day. How far this writer had advanced beyond his fellows in dramatic power is revealed by a comparison of Joseph's attempts at home thrusts in 'The Weavers' Pageant'³ with the action in 'Processus Noe' and the 'Secunda Pastorum.' In the first the phrasing is awkward, retards the action in many cases; in the second the thought comes sharp, quick, and the action knows no halt.

This author neglects no opportunity of exposing the iniquities of his day; even in the six introductory stanzas of the 'Conspiracio et Captio,' Pilate represents a later generation of politician:

¹ See p. 251.

² Schipper, vol. 1, p. 391.

³ The Presentation in the Temple: A Pageant as originally represented by the Corporation of the Weavers of Coventry: Edinburgh, Printed by the Abbotsford Club.

For I am he that may make or mar a man,
My self if I it say as men of cowrte now say;
Supporte a man to-day, to-morne agans him than,
On both parties thus I play and fenys me to ordan
The right :

Bot alle fals indytars,
Quest mangers and jurors,
And alle thise fals out ryders,
Ar welcom to my sigigt.

The coarseness of the early English comedy, of Gammar Gurton's Needle, is here, but it is probably no coarser than the life it depicts. The shepherd folk, the Mak of the hovel, the peasant and his wife, were prone to call a spade a spade. The fun is old English fun, rude, coarse, outspoken, and fond of hard knocks, but not lascivious.

But where in the history of these cycles does this author stand? The stanza is late. In 'Conspiracio et Captio' his work is an introduction; in 'Flagellacio' it is the play to which a foreign introduction has been prefixed. I judge him a late contributor to a cycle already long established. His plays seem to me a direct contribution to the cycle, rather than plays elsewhere popular which finally gained a position in the cycle, because his work in 'Conspiracio et Captio' is of the nature of a new introduction to a play with which he was conversant. His other plays, especially those of the shepherds, superseded the plays of the original compilation.

Possibly one significant agreement may point to his church affiliations, since it seems to prove an acquaintance with one set of church plays rather than another :—¹

Noah's answer to Deus, "What art thou," W.

Noah's answer to Angel, "What art thou," Newcastle.

Noah's answer to Deus, "A! Lorde, I lowe þe lowðe and stille," Y.

Noah's answer to God, "O, Lorde, I thanke thee lowde and stille,"

Ch.

It is not impossible that light might be shed upon the literary interdependence of the churches by an exhaustive study of such passages.

B. The passage from "Cayphas" to "Tunc dicet Sanctus Johannes" is the fragment of the parent cycle whose characteristics we have already discussed.²

C. This passage extends from "Tunc dicet Sanctus Johannes" to the words—"Now wote ye what I have done," in Jesus' speech. This is introductory to the final instructions of Jesus to his disciples. It is written in couplets, which, towards the last, approach the succeeding extract in the literalness of its rendering of the Biblical nar-

¹ See p. 256.

² See p. 267.

ration. Such passages, as we have already shown,¹ are to be attributed to the hand of the compiler himself.

D. The passage, beginning—"Now wote ye what I have done," and closing with the introduction of Pilate, is of a different character. With the exception of the part assigned to 'Trinitas,' it is almost an exact translation of the Biblical narrative, though usually taken in sequence. If we begin for example, at the words—

In my fader house, for sothe,
Is many a wonnyng stede,

the author paraphrases very literally the following passages,—John XIV, 2, 3, 6, 18, 19, 20, 28, 29, 30, 31, Mark XIV, 33, 38, 34, Luke XXII, 42, Mark XIV, 37, etc. The selection seems to be made with reference to dramatic quality, when possible; thus, he chooses from Mark, "Simon, dormis?" in preference to Luke's, "Et ait illis: Quid dormitis?"

The stanza is the quatrain. One may venture to say that the verses were originally alternate 4's and 3's, i. e. septenar couplets with riming cæsuras, but the alterations have been such that we cannot pronounce upon the verse with certainty.

E. The passage, beginning with 'Pilatus' and closing with the introduction of 'Malcus Miles,' shows signs of connection with the York plays upon the same subject, or was modeled upon work of that school.

W begins—Peas I comaunde you, carles unkynde,
To stand as styll as any stone,
In donyon depe he shalbe pynde,
That will not sesse his tong anone.

In Y XIX Herod exclaims—

Stente of youre steuenes stoute,
And stille as stone ge stande.

In Y XXXII Pilatus commands—

And loke þat ye stirre with no striffe but stand stone still.

These may be stock expressions, but the use of them would argue some community of interest between the authors.

F. Beginning with 'Malcus Miles,' four stanzas are inserted into the play, whose structure we recognize as that of the so-called Coventry plays: a b a b a b c d d c. It would seem that this passage and that marked E must be late interpolations, for the words of Jesus—

"Ryse up, Peter, and go with me," should follow the last speech of Jesus, i. e. the close of passage D, without break.

¹ See p. 253.

There are, then, in this cento seven distinct passages, the work of six different authors. Indeed, I suspect that single sentences, which were favorite expressions of the day, are imbedded in O, but am not sufficiently conversant with the literature of the day to locate them.

We will now consider another play which exhibits marked correspondences in all the cycles.

XXIV.

THE PLAY OF THE ANNUNCIATION.

- Y. The Annunciation, and Visit of Elizabeth to Mary.
 W. Annunciacio.
 W. Salutacio Elizabeth.
 Ch. The Salutation and Nativity.
 Co. The Salutation and Conception.
 Co. The Visit to Elizabeth.
 S & T. The Pageant of the Shearmen and Taylors of Coventry.
-

The Prologue of Y is in the stanza of the parent cycle. We will make that the basis of the comparison of Prologue :

- Y, 2. Howe man was made with-outen mysse.
 W, 2. And Adam with my handes hath wrought.
 Y, 3. And sette whare he sulde euer haue bene.
 W, 5. To won ther in, as that I weynd.
 Y, 6. And was putte oute fro paradys.
 W, 7. Then I hyme put out of that place,
 Y, 7. And sithen what sorouse sor warre sene
 Sente vn-to hym and to al his.
 W, 11. For he has bought his syn fulle sore.
 Y, 9. And howe they lay lange space
 In helle lokyn fro lyght.
 W, 12. Thise v thousand yeris and more,
 Fyrst in erth, and sythen in helle.
 Y, 11. Tille god graunted þam grace
 Of helpe, als he hadde hyght.
 W, 14. Bot long therin shalle he not dwelle,
 Outt of payn he shalle be boght,
 I wylle not tyne that I have wrought.
 W, 15-42. Will send his Son.
 Y, 17-132. The statements of the prophets, in Latin with English exposition.
 W, 43-50. As his prophets have said.
 Y, 134-144. Luke says that God sent Gabriel.
 W, 51-74. Deus commands Gabriel to go.
-

- Co. Prologue by Contemplacio. Parallel passages are—
 To Y, 9. Ffowre thousand six undryd four yere I telle
 Man ffor his offens and ffowle foly,
 Hath loyn geres in the peynes of helle,

To Y, 11. Good Lord, have on man pyté,
Have mende of the prayour said by Ysaie.
The Virtues plead and the Son resolves to go.
Deus commands Gabriel to go.

S & T. Prologue by Isayc.—A general prologue.

Ch. Has no prologue.

The sequence of thought between W and Y is too marked for accident. The passage in W is in couplets. I think that we must conclude that the compiler of W was dissatisfied with the long non-dramatic prologue of Y, re-wrote the first stanza, following closely the sequence of thought, and added what he considered more appropriate matter. The use made by Y of Latin passages with English exposition, as in his 'Harrowing of Hell,' was in accordance with the traditions of church plays.

No sign of any knowledge of the York Prologue is shown by the writers of the other plays.

We proceed to examine the play itself, and here we add the correspondent passages from the Bible.

Y, 145, Ang. Hayle! Marie! full of grace and blysse,
Oure lord god is with þe,
And has chosen þe for his,
Of all women blist mot þou be.

S T. Gaberell. Hayle maré full of grace owre lord god ys with thé
Aboue all wemen þat evur wasse
Ladé blesside mote thou be.

Ch. Gabriell. Heale be thou, Marye, mother ffree,
Full of grace, God is with thee,
Amonge all wemen blessed thou be,
And the frute of thy bodye.

W. Gabrielle. Haylle Mary, gracyouse,
Haylle madyn and Godes spouse.
.....
Of alle vyrgyns thou art qwene.

3 lines.

My lord of heven is wyth the.

Co. Gabriel. Heyl, fful of grace, God is with the.
Amonge alle wemen blyssyd art thu.

Luke 1, 28. Ave, gratia plena: Dominus tecum: Benedicte tu in mulieribus, et
42. benedictus fructus ventris tui.

Y 149-52. Mary expresses surprise.

S & T. Mary expresses amazement and trouble.

Ch. Mary expresses amazement and trouble.

W. Marie. What is thi name?

Co. Mary marvels at the greeting.

Luke 1, 29. Quæ cum audisset, turbata est in sermone ejus, et cogitabat qualis
esset ista salutatio.

Y 153. Ne drede þe nought, þou mylde marie.

S & T. Dred thé nothyng meydin of this.

Co. Mary, in this take ye no drede.

W. Goodly lady, have thou no drede.

Ch. Marye, ney dred thee naughte this casse.

Luke 1, 30. Ne timeas, Maria.

- Y 155-6. For þou has fun souerany
At god a grace ouer othir all.
3 lines.
- S & T. Salutyng thé here asse most exselent
Whose virtue aboue all othur dothe abownde.
- Co. Ffor at God grace ffownde have ye.
- W. For thou has fonden alle thyn oone,
The grace of God.
- Ch. With greate God founde thou haste
Amonge all wemen especiaall grace.
- Luke 1, 30. Invenisti enim gratiam apud Deum.
- Y 158-9. In chastite of thy bodye
Consayue and bere a childe þou sall.
- S & T. For thou shalt conceyve apon þis grownd.
- Ch. Therefore, marye, thou mone
Conseave and beare, I tell thee,
A child.
- W. Thou shalle conceyve within thy sydys
A chyld of myght.
- Co. Ye xall conceyve in your wombe indede
A child.
- Luke 1, 31. Ecce concipies in utero, et paries filium.
- Y, 160. His name Jesu sall þou calle.
- S & T.
- Ch. His name Jesus shalbe.
- W. Calle hym Jesum.
- Co. His name of you Jhesu clepyd xall be,
- Luke 1, 31. Et vocabis nomen ejus Jesum,
- Y, 161. Mekill of myght þan sall he bee.
- S & T.
- Ch. So greate shalbe never non as he.
- W. Myghtfulle man shalle he be that.
- Co. He xall be grett.
- Luke 1, 32. Hic erit magnus.
- Y, 162. He sall be God and called God sonne.
- S & T.
- Ch. And called Godes sonne.
- W. And Godes son shalle he hat.
- Co. The son of the hyst clepyd of kende.
- Luke 1, 32. Et Filius Altissimi vocabitur.
- Y, 163-4. Dauid sege, his fadir free,
Sall God hym giffe to sytte vppon.
- S & T.
- Ch. Shall geve hym David his fathers see.
- W. My Lord, also shalle gyf hym tylle,
Hys fader sete David, at wylle,
Therein to sytte.
- Co. And of his ffadyr, Davyd, the Lord xall geve hym the se.
- Luke 1, 32. Et dabit illi Dominus Deus sedem David patris ejus.
- Y, 165-6. Als kyng for euer regne sall hee,
In Jacob house ay for to wonne.
- S & T.
- Ch. In Jacobes house raigne shall he,
With full mighte ever more.
- W. He shalle be kyng in Jacob kyn,
His kyngdom shalle never blyn.
- Co. Reyning in the hous of Jacob, of whiche regne xal be non ende.
- Luke 1, 32. Et regnabit in domo Jacob in æternum.

- Y, 167-8. Of his kyngdome and dignite
Shall noo man erthly knaw ne con.
- S & T.
- Ch. That suche renowne and royalltye
Hade never non before.
- W & Co.
- Luke 1, 33. Et regni ejus non erit finis.
- Y, 170, 173. How sulde it be
I knawe no man
- S & T. I marvell soore how thatt mabé.
Mans cumpany knev I nevur yett.
- Ch. How maye this be?
In synne knewe I no worldye wighte.
- W. How shuld it be?
I cam never by man's syde,
- Co. In what manere of wyse xal this be?
Ffor knowyng of man I have non now.
- Luke 1, 34. Quomodo fiet istud quoniam virum non cognosco?
- Y, 177-8. Ang. The Halygast in þe sall lighte,
Heh vertue sall to þe holde,
- S & T. The whollé gost in thé schall lyght
And schado thy soll soo with vertuo,
- Ch. The Holye Ghoste shall in thee lighte
From God in magistie,
And shadowe thee seemlye in sight;
The Holy Gost shalle light in the,
And his vertue,
He shall umshade, and fulfille.
- Co. The Holy Gost xal come fro above to the,
And the vertu of hym hiest xal schadu the so.
- Luke 1, 35. Spiritus sanctus superveniet in te, et virtus altissimi obumbrabit tibi.
- Y, 175-80. The holy birthe of the so bright,
God sonne he sall be calde.
- S & T. This chylde that of thé schalbe borne
Ys the second persone in treneté.
- Ch. Theirfore that holye, as I have teichte,
That thou shalte beare, through Godes mighte,
His sonne shall called be.
- W. The child that thou shalle bere, madame,
Shalle Godes son be callid by name.
- Co. Therefore that Holy Gost of the xal be bore,
He xal be clepyd the son of God says.
- Luke 1, 35. Ideoque et quod nascetur ex te Sanctum, vocabitur Filius Dei.
- Y, 181-2. Loo Elyzabeth, þi cosyne, ne myght
In elde consayue a childe for alde.
- S & T. Be holde Eylesabeth thy cosyn clene
The wych wasse barren & past all age.
- Ch. Elizabeth, that barren was,
As thou maie se, conseaveid has
In age a sonne through Godes grace.
- W. Elisabeth, thi cosyn, that is cald geld,
She has conceyffed a son in elde.
- Co. And so Elyzabeth your cosyn thore,
She hath conseyyid a son in hyre age.
- Luke 1, 36. Et ecce Elizabeth cognata tua et ipsa concepit filium in senectute sua.
- Y, 183-4. This is the sexte moneth full ryght,
Tohir that baran has ben talde.

- S & T. And now with chyld seche hath bene
Syx monethis and more asse schalbe sene.
- Ch. The seixte month is gone nowe againe
Seith men called her barene.
- W. And this is, who wylle late,
The sext monethe of her conceytate,
That geld is cald.
- Co. This is the sexte monyth of here passage,
Of here that clepyd was bareyn.
- Luke 1, 36. Et hic mensis sextus est illi, quæ vocatur sterilis.
- Y.
- S & T. For to god onpossibull nothyng mabé.
- Ch. But nothings to Godes mighte and mayne
Impossible ys.
- W. No word, lady, that I the bryng,
Is unmyghtfulle to heven hyng,
But alle shalle hald.
- Co. Nothyng is impossyble to Goddys usage.
- Luke 1, 37. Quia non erit impossibile apud Deum omne verbum.
- Y, 189-92. Goddis handmayden, lo! me here,
To his will all redy grayd,
Be done to me of all manere.
- S & T. Hys hy pleysuris forto full fyll
Asse his one hand mayde I submyt me.
- Ch. Loc! Godes cossen meklye here,
Leve that yt falle in such manere.
- W. I am his madyn at his hand,
Be done to me in alle thyng.
- Co. Se here the hand-mayden of our Lorde,
Aftyr thi worde be it don to me.
- Luke 1, 38. Ecce ancilla Domini, fiat mihi secundum verbum tuum.
- Y. Scene II. Mary visits Elizabeth and salutes her. Luke 1, 40.
- S & T. Joseph's trouble about Mary: then the coming of the shepherds.
The visit is omitted.
- Ch. Mary visits Elizabeth.—Elizabeth, nice God thee see!
- W. Joseph's trouble about Mary. Next play 'Salutacio Elizabeth.'
- Co. Play xii. 'Joseph's Return;' then, play xiii, 'Visit to Elizabeth.'
- Y, 205-208. Blissid beþou anely
Of all women in feere,
And þe frute of thy body
Be blissid feere and nere.
- Ch. Marye, blessed moste thou be,
And the frute that comes of thee
Amonge wemen alle.
- W. Introductory conversation of thirty lines; then—
Blyssed be thou of alle women.
And the fruyte that I weþle ken,
Within the wombe of the.
- Co. A long introduction; then—
Blyssd be thou amonge alle women.
And blyssed be the frute of thi womb also.
- Luke 1, 42. Benedicta tu inter mulieres, et benedictus fructus ventris tui.
- Y, 209-212. þis is ioyfull tydyng
þat I may nowe here see,
þe modyr of my lord kyng,
þus-gate come to me.

- Ch. Wonderlye nowe marvailles me,
That Marye, Godes mother freye,
Greetes me this of symple degreey.
- W. And this tyme may I blys,
That my lordes moder is
Comon thus unto me.
- Co. How is it that the modyr of God me xulde come to?
- Luke 1, 43. Et unde hoc mihi ut veniat mater Domini mei ad me?
- Y, 213-16. Sone als þe voyce of þine haylsing
Moght myn neres entre and be,
þe childe in my wombe so yenge,
Makes grete myrthe vnto þe.
- Ch. When thou me greeteste, sweete Marye,
The childe stored in my bodye,
For greate joye of thy companye.
- W. For syn that tyme fulle welle I wote,
The steyn of angelle voce it smote,
And rang now in myne ere;
A selcouthe thyng is me betyde,
The chyld makys joy, as any byrd,
That I in body bere.
- Co.
- Luke 1, 44. Ecce enim ut facta est vox salutationis tue in auribus meis, exultavit in gaudio infans in utero meo.
- Y, 217-240. A free rendering of the 'Magnificat,' broken by a stanza by Elizabeth.
- Ch. Luke 1, 46 and 47 quoted with slight changes, amplified in English, and followed by a paraphrase of the remainder of the 'Magnificat.'
- Co. Mary gives the Magnificat, sentence by sentence, and Elizabeth translates each sentence.

The above comparisons lead naturally to four conclusions:—

First. All lists of agreeing passages, where the agreement arises from the literal translation of dramatic passages of the Biblical narrative, are misleading when used to support a theory of direct interdependence among the extant plays.

Secondly. The earliest church plays gave with literal fidelity the Biblical narrative when it was phrased in conversation, i. e. was adapted to dramatic presentation. Later redactors were reluctant to change passages that were already dramatic, and yet adhered closely to the sacred story; hence the unchanged play spread through the churches. The writers of cycles were conversant with the plays, each with those of his church, and adopted such passages with but few changes, since the movement was dramatic, and the language faithful to the sacred text; hence a striking similarity arose where sometimes no connection existed.

Thirdly. Until as thorough-going an agreement is shown between the church plays of France and those of England as is here shown among the plays of different cycles, we must claim the Chester play as a product of England. Here lies another strong proof that the Chester plays were written on English soil.

Fourthly. It would seem that the play in question must have been originally the work of one author, that this author wrote it in Latin for a church play, and that this play was adopted for some reason in many churches. I should place its composition at an earlier date than that of the cyclic plays, for the writer of the York parent cycle incorporated it in his cycle, writing for it a prologue of his own.

I believe that the writer of the W play, not the compiler of the W cycle, had this York play before him, since he recast a part of the prologue; but he departed further from the Biblical text than any other writer, exhibiting such independence as the compiler of W nowhere shows. The Ch and Co plays were probably taken directly from the play in the church best known to the author. The stanzaic structure agrees sufficiently well in each cycle with the author's known style to render it probable that the play was translated independently in each case. The Shearmen and Taylors' play may be a church play, or may be in part the York play, as is certainly the other extant Coventry play.

Finally. A word here about the redactor of the true Coventry plays may be in place. Robart Croo considered that he had accomplished a laudable undertaking when he had modernized the Coventry plays. His execrable spelling, pointless interpolations, and attempts at comic writing, especially in the part of Joseph in the Weavers' play, mark him as a man of little education and less taste. He, or his son, appears to have been a necessary factotum of the mystery play business in Coventry. One sometimes wonders if he were not a manager who, for a consideration, presented the plays for one or more gilds. I do not know that any one has directed attention to his name in the gild accounts as given by Sharp. The items are as follows—

Smiths' Pageant.

1563—It' to Robart Croo for ij leves of ore play boke viij *d.*

Drapers' Pageant.

1557—paid to Robart Crowe for makyng of the boke for the paggen xx *s.*

1560—It' payd to Robart Croo for playyng God iijs. iiij *d.*

1560—payd to Cro for mendyng the devells cottes xx *d.*

1562—Itm payde Robert Croo for a hat for the pharysye xij *d.*

1556—payd to Crowe for makyng of iij worldys ij *s.*

[In 1560 the sum paid him was 3 *s.* 8 *d.*]

—payd him more for same iijs. viij *d.*

Sharp states that Croo was employed also by the Cappers and Shearmen's Companies in a similar manner.

XXV.

CHRIST WITH THE DOCTORS IN THE TEMPLE.

This play, Y XX, is a play of the parent cycle. It is also, with variations, the 'Pagina Doctorum' of the Woodkirk cycle, the 'Weavers' Pageant' of Coventry, and 'The Purification' of the Chester cycle. Certain relations exist also between it and the Coventry play, 'Christ Disputing in the Temple.' As this is the only play of the parent cycle that has found its way into four gild cycles, it is worthy of a somewhat minute analysis.

The introduction.—In W of Co a play of the prophets comes first. It is unlike the play of any other cycle. How this play could find place as an introduction to 'Christ in the Temple' in a cycle which contained the Salutation, is difficult of explanation. There is every reason for believing that these cycles at first followed strictly the sequence of the Biblical narrative. This transference of the play of the prophets to a position subsequent to that of the Salutation must be a late innovation, though I see no reason for attributing it to Robart Croo, who has enough to answer for without it.

The episode of Simeon, Anna, and the Angels.—The agreement among the plays is that of a common church tradition reinforced by literary convention. This episode, together with that of Joseph and Mary's journey to the temple, bears the marks of the later literary fashion in most of the plays. I cannot say that it does in the Chester play, but in the York 'Purification' the later style is very evident, and many traces of it appear in W of Co, and Co.

Joseph and Mary homeward bound.—Y opens with this. W of Co agrees throughout the scene. Croo's adaptation places them upon a 'for pageant,' yet puts words into Mary's mouth that imply the journey. Ch introduces Mary with eight verses that are evidently patchwork. Mary says that she wishes the child had not left them, but advises in the first stanza borrowed from the York play that they proceed on their journey. Her later appearance in the temple is wholly unaccounted for. The remainder of the first stanza in Y is omitted in Ch.

The introduction of the Doctors.—In Y and W of Co the Doctors prepare to announce the law to all comers. In Co a similar subject receives very different treatment. In W the talk is of the prophecies of Christ.

Jesus's salutation.—

- Y. Lordingis, lowe be with you lentte,
And mirthis be vn-to this mene.
W of Co. Lordis moche lowe with you be lent,
And pes be amonge this company,
W. Masters, luf be with you lent,
And mensk be unto this meneye.

The salutation and the attempt of the Doctors to send the child away are not found in Ch. A different salutation is found in Co, and also an attempt to send Jesus away.

Primus Magister and Secundus Magister address Jesus.—The speeches agree in Y, W, and W of Co.

Tertius Magister addresses Jesus.—In Y, W, and Ch he invites Jesus to come and learn; in W of Co he asserts that the child is too young, but his speech is evidently modeled on Y in phraseology, and follows a cue given in the next speech of Primus Magister in Y.

Jesus's reply.—This agrees in Y, W, and W of Co, is expanded in Ch, with some slight likeness to Co.

The Doctors answer.—Y gives this in four verses, W agrees, W of Co gives two verses to Primus Magister and two to Secundus Magister. Ch gives the four to one speaker, and adds four as an expansion of the statement that Jesus is too young.

Jesus's reply.—This agrees in Y and W, is slightly expanded in W of Co, omitted in Ch.

Secundus Magister answers.—Agreement in Y and W of Co; in W he speaks the first two verses and Tertius Magister the remaining four. (This was probably the original plan.) Ch gives Secundus Magister four lines of different content.

Jesus declares his power—

The holy ghost has on me light,

in four verses. Agreement of Y, W, W of Co, Ch.

Primus Magister answers.—This agrees in Y and W, is paraphrased in W of Co, is expanded from two to four verses in Ch.

Jesus declares—

Certis, I was or ye,
And schall be aftir you.

In Y, W, and W of Co, Primus Magister replies in a long speech. Jesus states that he will declare the truth. Primus Magister wonders where the child could have learned such wisdom. In the above, Y, W of Co, and W agree, W furnishing in some points the better text. Ch departs from the model, transferring from a later position

a speech of Tertius Mag. and of Primus Mag.—each speech of four verses—in favor of sending Jesus away.

Secundus Mag., in W of Co Tertius Mag., expresses the hope that Jesus has come “to salfe oure sare.” Here Ch agrees even in rime-series, though with variation of wording.

Jesus offers to give proof.—Tertius Mag., Primus Mag. in W of Co, asks for the first commandment. This is omitted in Ch.

Jesus replies that they have their books, and invites them to read. Ch departs slightly from the model.

Primus Mag., Secundus Mag. in W of Co, answers—

I rede this is the firste bidding.

The remaining three lines agree closely in language.

Jesus expounds the two commandments of love to God and love to man, in eighteen verses in Y and W. These lines W of Co cuts down to four verses.

Primus Mag., Tertius Mag. in W of Co, asks him for the remaining commandments. This interruption is omitted in Ch.

Jesus gives the commandments, with interesting differences among the plays.—In Ch the version is free and not minute; in Y literal with omission of explanatory phrases; in W some three verses are generally added to the Y statement; W of Co stands between Y and W, but nearer to W. Second Mag. in Y and W, Tertius in Ch, Primus in W of Co, declares that Jesus speaks the truth. Tertius Mag., and Primus Mag. in Y, W, and W of Co, are in favor of sending Jesus away, lest he should rob them of their fame. These speeches have been transferred in Ch to an earlier position in the play. This is a proof that the order of the play in the other cycle is older than that of Ch, an important point.

Mary and Joseph lament because they cannot find their child.—In this Y, W, and W of Co agree, but Ch omits this introduction of their return. Mary discovers Jesus sitting among the Doctors. In Y, W, and W of Co Joseph expresses thankfulness; in Ch there is no interruption of Mary's remarks. Mary requests Joseph to go to Jesus. Here the Ch rime-series proves the derivation of the play from Y. Joseph dares not meddle with men of might “in furies fyne.” In this all plays agree.

Mary tells Joseph that they will respect his age. Joseph responds that he does not know how to address them.

Mary offers to go with him.

Joseph wishes Mary to go first.—This little episode is omitted in Ch, but appears to belong to the original play.

Mary addresses Jesus.—Agreement of Y and W. Immaterial changes in W of Co, speech reduced to four verses of free paraphrase in Ch.

Jesus replies.—Agreement among W of Co, Ch, and Y. W adds verses after the manner of W in the 'Harrowing of Hell.'

Joseph addresses Jesus in Y and W, but Mary addresses Jesus in W of Co and Ch. This is a significant difference.

An angel closes the Ch play. In Y and W the closing agrees, although W has preserved the proper assignment of parts to the Doctors, which in Y have all been given to one speaker. W of Co shows Croo's handiwork in a tedious closing.

Such, then, is the play of 'Christ with the Doctors in the Temple.' A few inferences can be drawn from these facts:—

First. The play, as found in W of Co, divides into three parts: the Play of the Prophets; the Play of Simeon, Anna, and the Coming to the Temple; the Play of Christ among the Doctors. With the last only have we any concern.

Secondly. The original play was the present York play, the slight errors of the scribe of the Register being eliminated.

Thirdly. The compiler of W took the Y play, but not from the Register, and interpolated or expanded according to his known custom, but with fewer changes than usual.

Fourthly. W of Co, in the matter of the commandments, appears to lean upon W rather than upon Y.

Fifthly. Ch, because of the transposition of the two speeches of the Doctors, is probably later than the other plays, and because of agreement with W of Co in Mary's speech, when Joseph speaks in the other plays, is without much doubt a borrowing from Coventry before the days of Robart Croo, i. e. before 15—. This dependence upon W of Co does not, however, apply to the whole play in Ch. The scene of Simeon and Anna is in the metre of the cycle, the scene of Christ in the Temple is in quatrains.

Sixthly. It is demonstrated, then, that the craft-gilds of Coventry were conversant with the gild plays of the North, and that the Chester plays form also a composite cycle, as truly as do the plays of W and Y, though composite to a less extent.

If the plays of the remaining craft-cycles, those of Newcastle-on-Tyne, Beverley, Worcester, and others if there were others, were extant, it is probable that many other points of agreement could be established. These plays were not acted in a corner. The Mercers of Shrewsbury fined a brother that absented himself from their

Corpus Christi procession to visit the play at Coventry.¹ The people flocked to these plays from distances that were then considered great. Nothing could be more reasonable than that the players of one city should take note of the successful plays of another, and seek to incorporate such plays into the home cycle.

XXVI.

CORRESPONDENCE OUTSIDE OF THE PARENT CYCLE.

In the Woodkirk plays are found portions of three York plays not included in the parent cycle. These York plays are—

- Y XXXIV. Christ Led up to Calvary.
 Y XXXVIII. The Resurrection.
 Y XLVIII. The Judgment Day.

The York play, 'Christ Led up to Calvary,' agrees in subject with W 'Flagellacio,' which has been already the subject of our discussion.² We have recognized one scene of the tormentors as the work of our earliest comedy writer, to whom we have also assigned certain other portions of the W cycle.

The second scene begins with 'Johannes Apostolus,' and corresponds to the second scene of the York play. An examination of this may inform us as to the genesis of the play.

Stanza 10. W impairs verse movement by introducing 'so,' 'we,' substitutes 'Caiphas' for 'bushoppe,' 'fled' for 'went,' 'fals witnes' for 'soteltes,' destroys alliteration four times. W omits stanza 11, gives stanza 12. A leaf is lost in Y. Portions of stanza 13, and of one following the lost leaf and numbered by Miss Smith 14, and stanza 15, bring the Y play to the introduction of Jesus bearing the cross. W apparently agrees in general with the lost Y, but introduces Mary's attempt to take the cross, and departs otherwise from the Y stanzas extant.

W may paraphrase Y stanzas 16 and 17, or these stanzas may depend directly upon the Biblical narrative as given in some church play.

Y stanza 19 follows in W. W omits Y 20 and the first part of Y 21. In Y the women leave in stanza 21, but in W they must have left in Y 19, thus abridging the altercation with the soldiers.

¹ Hibbert, F. A. *The Influence and Development of English Gilds*, p. 63.

² See p. 279.

W and Y agree for the remainder of Y 21, W omits two speeches in Y 22, agreeing with Y in the last of the stanza. W contains Y 23 and 24, omits Y 25, gives 26, 27, 28, 29, and closes.

It is evident that the York play is the older, and has been cut down for insertion into the Woodkirk.

The Woodkirk play suffers resolution into—

First. An introduction of Pilate, in four stanzas.

Secondly. The scene of the tormentors, which was written by the author of 'Processus Noe,' 'Prima Pastorum,' 'Secunda Pastorum,' 'Magnus Herodes,' Introduction to 'Conspiracio et Captio,' and 'Processus Talentorum.'

Thirdly. The remainder of the play, which is the York play, scene second, with omissions and slight alteration.

We will next consider the play, 'The Resurrection.'

Y contains five stanzas before the centurion is mentioned, W six. These stanzas are in the same metre in the two versions, and, so far as I can determine, of equal age. The seventh stanza in W is irregular through an attempt to fuse two stanzas, the second of which is Y 6 with the omission of two verses. This would argue an attempt to piece the W introduction to the Y play. The plays agree in stanzas 6 and 7. York then omits twenty-five lines of the original play, which W gives. These contain an account of the marvels for which the line in Y—

What may þes meruayles signifie?

prepares. Y substitutes stanza 8 for this passage.

Throughout the remainder of the play there is occasionally the displacing of single stanzas; thus, stanzas 22, 32, 44, 47, 63, 66, 67, and 69 of the York play do not appear in the Woodkirk, and full stanzas of W, after Y lines 114, 126, 186, 388, are different from the York, though following the thought closely.

The most noteworthy insertion is that of the monologue of Jesus, which W has in common with Chester.

The variations between these plays are less marked than we have found them hitherto. Both writers use the same metre, and the variant portions are so welded to the common text that neither Y nor W is the type to the exclusion of the other. I have fancied that the variants of W were more lyrical than those of Y, but cannot state it with certainty.

It would seem that in the time of these later plays the poets were conversant with a considerable body of devotional poetry. They wrote, taking excerpts and turns of expression from contemporaneous literature, and we shall find it difficult to estimate the independence of any single author, unless we saturate our minds with the non-dramatic poetry of their day.

The discussion of Y 'The Judgment Day' need not delay us long. The 'Juditium' is the corresponding W play. The Y play is throughout by one author. The W play displaces the first eighteen stanzas by a new introduction, all of which is lost except the last stanza. The second wicked soul follows with three stanzas agreeing in W and Y.¹ W then inserts thirty-two lines which are spoken by 'Quartus Malus,' after which it continues with Y 22.

The two striking features of the play are, first, the non-dramatic character of the second scene, which might very easily be an adaptation of a devotional monologue of Deus or Jesus, such as abound in the devotional poetry of the day; and, secondly, the introduction of the satirical comedy of Tutivillus in W, mention of which has been made in an earlier chapter.

In closing this discussion of the affiliation of the cycles, it may be well to emphasize the relation of church plays to certain agreements that exist among the cyclic plays, since Herttrich² and Hohlfeld³ have cited such coincidences as proof of interdependence among the cycles. We have stated above the reason for distinguishing the coincidences which accompany notable actions as correspondences due to familiar knowledge of the plays through frequent repetition rather than through acquaintance with texts. Such sentences do not argue derivation from a common text, but rather dependence upon church plays in which a conventional expression accompanies a mark-worthy action.

Such expressions abound in the plays, and further reference to them would be unnecessary, were it not for the prominence that other investigators have given them. Suffice it here, that I consider of this character Herttrich's reference to Y XVIII, and Hohlfeld's to Y XIII, XVII, and XXXVI. As to the verses culled by Hohlfeld from Y XLIII and W XXIV, they are so literally translated from Mark XVI, 17-18, that I think them unsafe data for any argument of direct connection between the plays themselves.

¹ In Y XXXIV the third soldier is named Sir Wymond. In the Romance of Athelston the earl of Dover is Sir Wymond. Cp. *Die Romanze von Athelston in Englische Studien*, vol. 13, p. 332.

² Herttrich, p. 6.

³ Anglia, vol. 11, p. 254.

XXVII.

CONCLUSION.

In the foregoing pages an attempt has been made to explore one of the sources of the English drama, and to solve some of the problems presented to us in the mass of inchoate dramatic material known as the English Mystery Plays.

Literary motives know no national boundaries ; therefore it is not surprising that we find our English plays in close connection with the French, and can watch in the Italian and German the action of the national spirit under diverse literary influences upon a common literary material. But this inheritance came from the mother church. The church in the Middle Ages was the conservator of letters. A spirit of devotion produced the church drama. A comprehension of this drama within the church, and of the causes that gave rise to it, can be gained only through the study of the liturgy and of its sources, which, in turn, leads us back to the foundation of the church itself.

The exploration of the dramatized Bible story necessitated, therefore, a sketch of the growth of dramatic symbolism in the early liturgy. It has been shown in outline how the church on the one hand drew into its service dramatic elements from the Greek, and, on the other, sought in the West a more materialistic phrasing for its thought. When these materialistic conceptions found final issue in transubstantiation, the symbolic drama became a true tragedy, and the cycle of the liturgy became the prototype of the cyclic play.

Little by little the plays that clustered about the two most touching festivals of the church, the Crucifixion and the Birth of Christ, approached each other, and the whole antecedent Bible story, together with the doom of saint and sinner, fell naturally into place as cause and consequence of these two central movements of a world drama.

All literary activities were drawn into line with the church, or denounced as impious. The material through which the spirit of the day could best and most safely express itself was the church drama. As a consequence, the religious drama that arose therefrom represents most accurately those ill-defined movements of the national spirit which determine a literature as national.

This religious drama became the truest exponent of the folk-spirit when it had passed from the church through the Puy to the Confré-

rie in France, to the Meistersänger in Germany, or to the craft-gild in England. Its fraternization with the comedy of the hedge-rows, last scion of the ancient dramatic stock, produced the Feast of Fools and the Feast of the Ass in France. Touched with the spirit of earnest criticism which gives to England her power of self-renovation, it became in its last days the precursor of the satirical comedy in politics and manners. Its unorganized mass has been a quarry of literary material for later authors, and motives kindred to our thought are still found within its content.

In France the plays were more especially the exponent of the literati and of the nobility, but in England they pulsed with the life of the crafts. Religious, philanthropic, and economic motives lay at the basis of the gild life. The processions, pageantry, and votive offerings, through which the gild expressed its corporate devotion, presented faithfully the religious spirit of the artisan. Through an adaptation of pageantry, its customary vehicle of homage, the civic body did honor to its earthly sovereign in the Royal Entry. A common spirit shaped a common material to religious, divertive and political ends, in procession, pageantry, and play. Therefore pageantry and processional customs bear directly upon the problems of the plays, and must be continually kept in mind as oftentimes conditioning the form of the play itself.

The craft plays were the favorite literature of the people for about two centuries. In them are embedded phases of thought prevalent in successive generations of men. Their sympathy with life foretokens the drama of life, the Shakespeare who purifies the native drama in the alembic of the classic.

Since a cycle, as that of York, was the expression of the mind of generations, it might be expected that its contents would change as successive standards of taste or opinion prevailed. As each play was in great measure the peculiar property of one gild, its fortunes must have been intimately connected with those of the gild. A sumptuous pageant wagon and skilled actors fitly represented an opulent gild. A fusion of plays through the excision of scenes advertised the joint labors of weaker crafts. Thus it came about that a cycle contains the plays, independent or revised, of many writers of different periods and schools, and that these plays, when popular, passed from cycle to cycle, or influenced powerfully the style of new plays.

A lack of appreciation of this intimacy of connection between play and gild life and fortune, has heretofore prevented an earnest inquiry

as to the possibly composite characters of the cycles. Such inquiry as has been made failed of results, because the key to the metrical problem was sought in the dialect, and not in the metrical forms. The plays as we have them are seriously modified by the labor of scribes. These scribes could, and oftentimes did, change the dialect essentially; the metrical structure they could reduce to ruins, but could not destroy beyond the possibility of restoration. If, therefore, the individuality, locality, and relative date of stanzaic structures were once established, a sure key would be placed in the hands of the investigator, through which he could read the secrets of the cycles.

With the establishment and definition of the Northern septenar stanza the segregation of a parent York cycle becomes possible, and the composite character of single plays of the Woodkirk cycle is made evident. The connections among the four cycles now reveal themselves, and the commanding position of the York plays can no longer be questioned.

The Mysteries constitute the most important body of connected literature in the fourteenth and fifteenth centuries. They contain the work of many authors, writing on related subjects in different styles and metres. In this work very possibly every generation for two centuries is represented. The mass of material is sufficient, and its arrangement through the labors of successive authors on single plays is such, that the Mystery Plays must become the most important source of literary history for their time, and the determining factor in many dialectal questions.

This monograph simply opens the field for other workers. If it has demonstrated the significance of stanzaic structure, unlocked the cycles, justified the segregation of certain plays as a parent cycle, proved the interdependence of the four craft-cycles in the two extant Coventry plays, established characteristics of workmanship and the relative dates of two or three authors, the labor of a year will not have been in vain. Such a result, however, raises more questions than it settles, and invites other explorers. Some first steps may have been taken, but final results must be the work of many scholars, and embrace the whole body of contemporaneous literature. Until some approximate statement of the connections between this literature and the early Elizabethan has been made, no just estimate can be formed of the proportions in which the national and classical elements combined to produce the golden age of English literature.

III.—PAPOID-DIGESTION. By R. H. CHITTENDEN.

“PAPOID,” a therapeutic agent, noted especially for its peculiar proteolytic power, is prepared from various parts of the papaw plant, *Carica Papaya*. As pointed out by Martin,* the occurrence of such a proteolytic ferment in the vegetable kingdom is in itself remarkable, and its discovery, together with that of other vegetable ferments, may eventually throw important light on the assimilation of animal food by carnivorous plants, as well as on the character of the proteolytic changes in the reserve proteids of plants in general.

Furthermore, such vegetable ferments when properly isolated may prove of great value in medicine as therapeutic agents, and it is with this point in view that the following study of papoid has been undertaken.

The researches of Martin† have shown that papaw juice is peculiarly rich in a variety of proteids, with one or more of which the proteolytic ferment is associated. Hence, it would naturally be expected that any active preparation of this ferment would contain a large proportion of proteid or albuminous material. This is the case with papoid, and the proteids present, as seen from the following reactions, are of several kinds.

1. *General Reactions of Papoid.*

Papoid, treated with distilled water, yields on filtration, a yellowish colored solution, leaving a small, flocky, insoluble residue. The solution is almost neutral, showing, however, a faint alkaline reaction when tested carefully. A drop or two of dilute acid does not, however, give any neutralization precipitate. The matter insoluble in water is partially dissolved by a 5 per cent. solution of sodium chloride, the fluid giving a fairly heavy precipitate with concentrated nitric acid, which on heating turns yellow, but does not dissolve, thus indicating the presence of a *globulin*. This residue of globulin is also soluble in 0.5 per cent. sodium carbonate and in 0.2 per cent. hydrochloric acid, from both of which solutions it is reprecipitated by neutralization, again dissolving in a slight excess of either dilute acid or alkali. That portion of the residue not dis-

* Journal of Physiology, vol. 5, p. 213.

† Ibid., vol. 6, p. 341.

solved by salt solution, dilute acid or alkali, is composed mainly of insoluble or *coagulated* proteid.

The addition of distilled water to a clear, aqueous solution of papoid produces a pronounced turbidity, which disappears at once on the addition of a little salt solution, thus showing the presence of a globulin which is obviously held in solution by virtue of the salts contained in the preparation.

Concentrated hydrochloric acid added to a clear, aqueous solution of papoid gives a heavy white precipitate of proteid matter, readily soluble in excess of the strong acid.

Concentrated nitric acid, under similar circumstances, produces a heavy white precipitate, which on heating or boiling dissolves in great part, yielding a reddish-yellow solution. On cooling this solution, the precipitate reappears, dissolving again as the mixture is heated, and once more reappearing as the fluid cools. This reaction is due to the presence of an *albumose*, while the accompanying body precipitated by nitric acid, but insoluble on heating, is a *globulin*, presumably the same as that previously noted in the insoluble matter.

Acetic acid and potassium ferrocyanide produce a heavy white precipitate only in part dissolved by warming.

Boiling a clear, aqueous solution of papoid gives rise to a turbidity, which on prolonged boiling passes into a flocculent precipitate. This precipitate is insoluble in 0.2 per cent. hydrochloric acid, and is therefore presumably composed of *coagulated globulin*.

Addition of magnesium sulphate in substance to an aqueous solution of papoid precipitates the globulin present, with perhaps some albumose. At first sight, from the milky appearance of the fluid, the precipitate appears quite voluminous, but the amount is in reality not large. On adding crystals of sodium sulphate to the filtrate from the above precipitate, in such quantity as to insure complete saturation of the fluid and with formation of sodio-magnesium sulphate, a second heavier precipitate is produced, composed mainly of albumoses (one or more) which agglutinates into a somewhat gummy mass, especially on the addition of a drop or two of acetic acid. With this precipitate of albumose, the proteolytic ferment appears to be mainly associated.

In the filtrate from this second or sodio-magnesium sulphate precipitate, the presence of peptone, in considerable quantity, can be shown by the biuret test. Or, by directly saturating an aqueous solution of papoid with ammonium sulphate while warm, the albu-

moses and globulin can be precipitated together, while the peptone can be detected in the filtrate by the biuret test, viz: by potassium hydroxide* and dilute cupric sulphate solution.

From the foregoing simple reactions, it is evident that papoid is composed essentially of a mixture of globulin, albumoses and peptone, with which is associated the ferments characteristic of the preparation. This is essentially in accord with what is known regarding the vegetable ferments in general, and indeed, the animal ferments as well. Thus even pepsin, in its general chemical reactions, behaves like an albumose, and the best known methods of isolating vegetable ferments result simply in the separation of one or more albumoses, or a globulin-like albumose, with which the ferment appears to be inseparably connected. In addition to the above proteid constituents, papoid appears to contain a small amount of indifferent material, probably added to counteract any tendency which the peptones or other like bodies have towards the accumulation of hygroscopic moisture.

2. *The Proteolytic Action of Papoid.*

As early as 1874, Roy† had called attention to the fact that papaw juice had the power of dissolving both animal and vegetable albumin, although he apparently did not clearly recognize the process as one of digestion. Later, Albrecht‡ experimented in the same direction, and since then many experimenters have added their testimony to the power of papaw preparations as solvents for proteid matter.

Papoid, so far as my observations extend, has the power of digesting to a greater or less extent all forms of proteid or albuminous matter, both coagulated and uncoagulated. Furthermore, papoid is peculiar in that its digestive power is exercised in a neutral, acid and alkaline medium. These statements are amply illustrated by the following experiments :

a. *Action on Coagulated Egg-albumin.*

The albumin was prepared for this experiment by taking the whites of several eggs, cutting the transparent membranes with scissors, adding an equal volume of distilled water and straining the mixture through fine muslin to remove the meshes enclosing the

* The potassium hydroxide solution must be added in large excess, sufficient to decompose all of the ammonium salt present.

† Glasgow Med. Journal, 1874.

‡ Schmidt's Jahrbuch, vol. 190.



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